The emergence of violent narratives in the life-course trajectories of online forum participants

by

Philippa Levey

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Approval

Name:	**Philippa Levey**
Degree:	**Master of Arts (Criminology)**
Title:	***The emergence of violent narratives in the life-course trajectories of online forum participants***
Examining Committee:	**Chair:** Dr. Martin Andresen Associate Director: Graduate Programs

Dr. Martin Bouchard
Senior Supervisor
Associate Professor

_____

Dr. Garth Davies
Supervisor
Associate Professor

_____

Dr. Thomas Holt
External Examiner
Associate Professor
School of Criminal Justice
Michigan State University

_____

Date Defended/Approved: July 11, 2016 _____

Abstract

Drawing from Life Course Theory (LCT) and General Strain Theory (GST), the current study sought to address the development of negative affect in the online context, specifically whether the turning point of entrance into adulthood was associated with a change in sentiment expressed online. A mixed methods approach was employed, whereby 96 individuals were sampled from 3 online Islamic forums, and approximately 3000 posts per user were analyzed over 9 years. Quantitative results display a development in sentiment over time (increasing in negativity) for both minors and adults. Qualitatively, most users displayed a change in overall posting content throughout their time online; but a select few did not display any development – these individuals were the most negative / extreme on the forum. Implications of these findings for research on the role of the Internet in the development of negative narratives and extremism are discussed, as well as avenues for future research.

Keywords: Life Course Theory; Sentiments; Extremism; Negativity; Minors; Online Discussion Forums

To my family and friends: your love and encouragement throughout the entirety of my academic career has allowed me to remain determined and driven in the face of obstacles and setbacks.

Acknowledgements

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List of Acronyms

9-11   September 11, 2001

A-1   Adult #1

CSIS   Canadian Security Intelligence Service

CSSP   Canadian Safety and Security Program

EU   European Union

FBI   Federal Bureau of Investigation

GST   General Strain Theory

IA   Islamic Awakening

ICCRC   International CyberCrime Research Center

ISIS   Islamic State in Iraq and Syria

LCT   Life Course Theory

M-1   Minor #1

MITS   Merkur Integrated Technology Solutions

RCMP   Royal Canadian Mounted Police

SFU   Simon Fraser University

TSAS   Canadian network for research on Terrorism Security and Society

Executive Summary

With online activities continuing to replace offline ones, many of today's youth have become adept at creating lives for themselves whereby they rarely need to leave their computer. Within the past few years, the Canadian government has openly begun stating their concern for the younger generations being easily manipulated, influenced, and even "radicalized" online. While the current study will not directly address the phenomenon of online "radicalization", it will take the first step in understanding trends in the narratives that individuals post on online discussion forums. These forums have been identified as an online social milieu that may facilitate the development of violent narratives for a minority of participants. Drawing from Life Course Theory (LCT) and General Strain Theory (GST), the study seeks to address the development of negative emotions in an online context, specifically whether certain turning points such as entry into adulthood is associated with a change in the nature of the sentiments expressed online.

The research question will be answered via a mixed methods approach where the content of posts from a sample of 96 individuals participating in three online discussion forums will be analyzed to assess both the nature and level of negative emotions. Since the events of September 2001, young Canadian Muslims, more than non-Muslims, have had to learn to develop their identity in a society that sometimes point to their religion as having a role in some major terrorist events around the world. For this reason, three forums both open to the public and focused on Islam-related issues were selected: Islamic Awakening (IA), Shia Chat, and Ummah. A total of 96 individuals who either self-identify themselves as Canadians, or had mentioned living in Canada at one point in their lives were sampled from these forums. Forty-eight (50%) of these individuals started on the forums before the age of 19 - they were considered as the sample of "minors". The other half of the sample started as adults; they acted as a comparison group. Posts were extracted for each user sampled through the use of a custom made online web parser which allows for the systematic collection and extraction of information within a website of interest. Each post was rated on a continuum of "positive" and "negative" emotions using a sentiment analysis software called

SentiStrength. Scores were averaged up over 6 month time periods. All 96 individuals in the sample posted for at least 12 months on the same forum (two time periods of 6 months). Close to 3000 posts per individual were analyzed. The mean length of time spent on the forum from first to last post was 9 years, providing a long enough window to study evolution and change in narratives for a majority of the sample.

The analysis was divided into three main steps: 1) Before/After Analysis – to test for statistical differences between minors sentiment scores before 19 years old compared to after entry into adulthood; 2) Analyzing the consistency of sentiment trajectories for individuals; 3) Qualitative Analysis - to identify turning points in a user's online trajectory, and see how these may have affected individual sentiment trends. The qualitative assessment is also used to validate (or refute) the trends uncovered in the quantitative sentiment data.

The first set of results suggests that minors have a wider range of sentiment scores than adults (range of 29.14 vs. 19.14, respectively), and adults to be more negative overall when compared to minors (mean score of -1.9 vs. -1.1, respectively). Importantly, the trend in sentiment score was found to change over time: overall sentiment scores for minors before turning 19 were significantly less negative than scores found after turning 19. Similarly, the first 50% of sentiment scores (overall) for adults were significantly less negative than those of the second 50% - showing a similar increase in negativity throughout their time on the forum.

A second set of results focus on the content of the posts. A total of 21 minors and 22 adults were selected for further qualitative analysis, as their sentiment trajectory was either negative; changed significantly over time, or both. Overall, three themes emerged for both the minors and adults groups.

The first theme was *'consistency in narrative'*. Those who were the most negative, violent, extreme, and even radical in their speech did not develop into (or out of) this type of online behavior as they transitioned into adulthood. These individuals tended to remain fairly constant in their speech patterns over time, and various transitions/turning points did not alter the users' sentiment to the extent of obvious change. Four of the twenty-one minors, and two of the twenty-two adults could be found

within theme 1. The second theme was *'development in narrative'*. These individuals tended to vary in their speech patterns over time, with the turning point of entrance into adulthood/university (or the halfway point for adults) displaying a noticeable change in each user's sentiment and content of posting. While some minors developed into negativity, the majority of minors simply portrayed a development of maturity and responsibility as they transitioned into adult roles. For both groups, it was common for users to develop show increasingly negative emotions paired with interest in politics, international affairs, and terrorism in the Middle East. Finally, the third theme was *'using forums as a stress outlet & means of support'*. Many users tended to rely on their respective forum for support and advice relating to challenging life events. These individuals used their forum as a means by which to alleviate stress – expressing their frustration/anger with regards to a key event or situation via short bursts or long, emotional monologues. Many experienced life-altering transitions (offline), and then garner support and relieved stress via their new community online.

Initially, it was not well understood the extent to which the more extreme individuals would be acting as "inspirers", "motivators", or "indoctrinators" towards others online. This did not appear to be the case from the users examined in the current study. Those who were most extreme were not well received by others online, regardless of age. The majority of minors examined appeared to be quite resistant to, and able to identify, other users of a more extreme and even radical nature. While it would have been ideal to use the current study (and subsequent findings) to inform the process of radicalization in an online setting, the current design was not intended to accomplish such a goal. Future research, however, might benefit from expanding the current research design to include a broader sample of all nationalities (and not simply Canadians), and several more forums, with a specific aim of better understanding how and whether violent radicals may influence others online, if at all.

Chapter 1.

Introduction

With online activities continuing to replace offline ones, many of today's youth have become adept at creating lives for themselves whereby they rarely need to leave their computer. Cyber space has allowed for connectivity of individuals spanning the world, who in any other circumstance may never have crossed paths (Plant, 2004). In most situations, the ability to connect with virtually anyone in the world (with Internet access) would constitute a positive development. However, the ubiquitous nature of the Internet has also allowed for people to form more negative, or unintentionally detrimental, relationships. Considering the current statistics regarding youth and their avid use of the Internet (Kim and Amna, 2015; Di Gennaro and Dutton, 2006; Owen, 2006), it therefore becomes vitally important to understand *what* these individuals are experiencing online, and *how* they are experiencing it.

Within the past two years, the Canadian government has openly begun stating their concern for youth being easily manipulated, influenced, and even "radicalized" online to the point of engaging in terrorist activities domestically and overseas (Bizina and Gray, 2014). Furthermore, the increasing number of individuals willing to fight alongside the Islamic State in Iraq and Syria (ISIS) has created an atmosphere of confusion and fear as to the vulnerability of youth (and even adults) who make this decision to engage in terrorist activities seemingly at random. The most recent recruitment statistics, made available through the Soufan Group suggested that nearly three thousand individuals have travelled overseas from somewhere in the West with the sole purpose of fighting with ISIS (Grose, 2014). Figures such as these have motivated academics, professionals, and even the layperson to wonder about the nature of online activities carried out by youth and young adults - specifically in relation to communication and social media sites. Particularly, the effects they are having on the minds of society's

most impressionable population.

Many scholars have suggested that individuals who are not well received in their offline activities turn to the Internet for safety and anonymity when stating their opinions. Individuals could possibly be seeking other "like-minded" individuals online as a result of people in their day-to-day lives failing to acknowledge and/or accept their outlying opinions (Sageman, 2004). Having the ability to access virtually any information at a moment's notice has made it fairly easy for individuals to become "inspired" or "motivated" online by social media tactics employed by more well known terrorist organizations. While it is widely recognized that ISIS has been using the Internet, specifically social media outlets, to reach and recruit individuals from almost anywhere in the world with an Internet connection (Cohen & Goldschmidt, 2015; Masi, 2014), few truly know the extent to which the Internet could be facilitating this "radicalization" process, if at all (Ducol, Bouchard, Davies, Ouellet, and Neudecker, 2015).

According to Sageman (2004), the impact of the Internet on the radicalization processes has drastically changed the way in which future fighters can be reached. Vulnerable, young, and isolated Muslims searching for their duty could now be reached through Internet propaganda, and glamorization of the "freedom fighter" role as a means by which to achieve a greater social and ideological standing as a Muslim (Sageman, 2005, p.160). Sageman (2004) depicts the existence of a unique "bond between the individual and [their] virtual Muslim community" (their *Ummah*). Since this virtual community holds no physical ties to the outside world, those partaking in the virtual community idealize it. According to Sageman (2004), the Internet acts as a double edged sword: it appeals to those feeling isolated and desperate for direction, while simultaneously furthering isolation by way of creating a second online community whereby individuals feels accepted and more willing to cut ties in their physical community.

In an exclusive interview with CNN on December 21 2015, Abu Hurriya – a former self-proclaimed "chief propagandist for Al Qaeda in the United States" (Cohen & Goldschmidt, 2015, para.11) who states he once helped to recruit hundreds of American individuals – admitted "he was once a lost, angry young man (a "seeker") who went

through the radicalization process, just as young people are going through it today". According to Harriya, who was speaking to the effects of the Internet as a recruitment tool, "I can understand how [youth] can get to that point. They're young and vulnerable. It's the same way that a kid in the ghetto joins a gang" (Cohen & Goldschmidt, 2015, para.12).

What is currently known about the Internet is that it seems to allow for an exchange of information to take place, whilst providing a relatively "safe" environment by which individuals can congregate and discuss topics of mutual interest (Scott and Carrington, 2011; Wellman and Gulia, 1999; Wellman and Haythornthwaite, 2002). Creating and strengthening online connections with people all over the world (or, 'networking'), when considered in relation to violent radicalization, could allow for ties to form between possible (or future) terrorists (Scott and Carrington, 2011; Chen, 2006; Hegghammer, 2006; Ducol et al., 2015). Thus, it becomes important to better understand the types of exchanges being made online by youth and young adults, as well as the extent to which these individuals are progressing and developing in their sentiment as a result. Such a concern is derived from the notion that youth may be exchanging online with individuals of a more precarious nature, and as such, developing into more negative (even violent or extreme) thought forms.

Drawing from Life Course Theory (LCT) and General Strain Theory (GST), the current study will seek to address the development of negative emotions in the online context, specifically whether certain turning points such as entry into adulthood are associated with a change in the nature of the sentiments expressed online. The working hypothesis is that major turning points in the life course such as the transition to adulthood (and possible entrance into university) will have an impact on the level of negativity found in online narratives. For the purpose of the current study, negativity (or negative affect) will refer to the subjective state of an individual whereby they find themselves experiencing an array of aversive and undesirable mood states, such as "anger, contempt, disgust, guilt, fear, and nervousness" (Watson, Clark, and Tellegen, 1988).

While the current study will not directly address the phenomenon of online "radicalization", as the examination of this concept would require an entirely different research design, it will take the first step in understanding and measuring the content found within these social media sites (such as online forums). Such a task will be conducted in relation to the development of what can be termed "extreme negativity", or negative emotions (such as anger, fear, frustration, and aggression), which have been amplified to exceed those of everyday life. Establishing a way to measure/study the development of negative sentiment online is important as negativity can manifest itself as strain and frustration, which can then lead to (or turn into) anger and possibly even violence (Agnew 1992) – a notion that will be elaborated upon further in chapter two. While not everyone will develop in such a manner, it remains vital to determine whether or not such emotions can manifest themselves online, and if so, how the Internet can be used to better understand the development and maturity of sentiment of youth and young adults.

To preface this study, it is crucial to make a note regarding semantics. While it may be desirable to make the leap from studying negativity online to studying violence online, they should not be used interchangeably. Extreme negativity may in fact lead to frustration, aggression, and even violence in some, but these terms should not be understood as being synonymous with one another. The quantitative aspects of the current study will be focusing on the growth and development of negativity (and positivity) in an online setting – to be distinguished from studying the development of violence. The qualitative aspects of the current study, however, will focus more so on violence, extremism, and radical speech, but will not place a direct focus on radicalization per se. Despite this, the findings of the study may in fact prove useful to inform the process of radicalization (specifically in the online setting) for future research and policy endeavours.

Chapter 2.

Literature Review

Two of the most central concepts making up the current study are that of youth and the Internet. As the latter has greatly increased in popularity over the past two decades, it is imperative to understand how the former make use of it. According to Kim and Amna (2015), the Internet is very quickly becoming engrained into every aspect of youth life, thereby appearing inseparable and necessary for daily activities. Current research suggests adolescents and young adults to be dominating the Internet (Subrahmanyam and Greenfield, 2008), specifically with regards to social media and networking sites. For instance, approximately 73% of adolescents alone engage in social media outlets (Shapiro and Margolin, 2014; Lenhart, 2009; 2012; Lenhart, Ling, Campbell, & Purcell, 2010). More generally, research has determined close to 90% of adolescents are entrenched in the overall "Internet environment" (Kim and Amna, 2015, p.222).

The amount of time these adolescents are spending online puts into perspective the current state the world is in: on average, youth between the ages of eleven and eighteen (just before entering into adulthood) tend to devote about eleven hours a day exposing themselves to electronic media and overall social networking sites (Shapiro and Margolin, 2014). The psychosocial impact this amount of time spent using electronic forms of media is having on adolescent today has yet to be fully understood, especially in relation to individual development (Shapiro and Margolin, 2014). Social networking sites – and more generally, the Internet – appears to be providing youth with an outlet for "support and communication – crucial to the development of age-appropriate adolescent relationships" (Shapiro and Margolin, 2014, p.2). Furthermore, online discussion forums have been said to encourage verbal "ranting", or emotional sentiment most commonly of a negative/frustrated nature, by members as they interact with one another (Laflen and

Fiorenza, 2012). However, academic research conducted thus far has yet to address issues of developmental factors pertaining to online sentiment, particularly, the development of extreme negativity, found in online forums.

2.1. Virtual Communities versus Traditional Communities

According to Bagozzi and Dholakia (2002), "virtual communities [are considered] to be mediated social spaces in the digital environment that allow groups to form and be sustained primarily through ongoing communication processes" (p. 3). Slightly less than eighty-four percent of individuals making use of the Internet have partaken in a virtual community of sorts – whether that be fully immersing oneself in, or simply viewing, said community (Horrigan, 2001). Many scholars regard this development to be a reflection of the increasing desire for people to find social fulfillment within the virtual setting (Rheingold, 1993; Wind and Mahajan, 2002) through common interests, social networking, and the communal exploration of "new identities" (Porter, 2006).

In addition, various scholars have attempted to understand the ways in which social relations and discourse can differ when comparing the more traditional offline context to the more novice online context, which has been an emerging trend over the past decade or so (Preece and Maloney-Krichmar, 2003; Herring, 1999). Kim (2000) personally conducted various interviews with leaders in both offline and online communities, and determined these communities (and individuals residing in them) to be quite similar in nature. Simply put, "people are people, even in cyberspace" (Kim, 2002, para.7). In all of these cases, however, semantics and relationships were not being examined longitudinally, so as to analyze the development over time, but were instead being compared statically between the online and offline contexts.

Likewise, virtual communities have been shown to provide members with similar benefits to those of offline communities by way of creating a safe space for individuals to interact through their own "conventions and language" (Bagozzi and Dholakia, 2002, p. 5), despite the geographic distance. According to Kim (2000), with regards to "social dynamics, physical and virtual communities are much the same" (para.3), with the

singular difference of residing in the online realm as opposed to the physical one. Furthermore, these online communities tend to encourage within-group interconnectedness (Wellman and Gulia, 1999), which serves to color the experiences, "opinions, ideas, and positions on specific issues" (Bagozzi and Dholakia, 2002, p. 5) of all those committed to the group. Depending on what these opinions and issues are (in other words, whether or not they are extremely negative or violent in nature), such a cohesive bond between group members may in fact encourage a groupthink mentality on these topics. Thus, better understanding the content being discussed in these online communities, as well as the extent to which members are being swayed by collective opinions and beliefs, will provide some insight into the nature of online forums and the possible development of individuals within them.

2.2. Extremism, Radicalization, and the Online Setting

When defining 'extremism', it is important to understand that by adding the word 'violent' to the term, the meaning changes all together. A simple definition of the term 'extremism' can be understood as a "belief in and support for ideas that are very far from what most people consider correct or reasonable" (Merriam-Webster, 'extremism'). In comparison, the Federal Bureau of Investigation (FBI) defines a 'violent extremist' as:

> [A person] who engage[s] in, encourage[s], endorse[s], condone[s], justif[ies], or support[s] in any way the commission of a violent act against either the government, its citizens, or its allies to achieve political, social, or economic changes or against others who may possess opinions contrary to their own radicalized ideology (Dyer, McCoy, Rodriguez, and Van Duyn, 2007, para.5).

The Royal Canadian Mounted Police (RCMP), define radicalization as "...the process by which individuals — usually young people — are introduced to an overtly ideological message and belief system that encourages movement from moderate, mainstream beliefs towards extreme views" (RCMP, 2009, p.1). In comparison to simply being considered a radical, the process whereby an individual finds themselves being radicalized extends to include not only rejection of the status quo (Bartlett and Miller, 2012), but also the development of extremist ideologies and beliefs (Borum, 2011, p.9).

The enactment of the Anti-terrorism, Crime and Security Act in 2001 restricted the manner in which people could state their opinions and thoughts online (Pue, 2003). As such, many began limiting and censoring their speech online as awareness of external interventions (i.e. police and intelligence forces) intercepting radical statements grew. Regardless of the extent to which radicalization is taking place online, the ability of ideas and beliefs, specifically pertaining to violent ideologies, to spread with ease amongst an online community has been the object of limited but informative academic research (Scott and Carrington, 2011; Chen, 2006; Hegghammer, 2006). For instance, the Internet is now the largest, and most effective, means of communication, recruitment, coordination, propagation, and fundraising for terrorist (and extremist) organizations (Weimann, 2010, p.46). Weimann (2010) stipulates that chat rooms, online forums, and various other means of instant online communication have become the most common forms of Internet tools employed to reach possible recruits. According to Noguchi and Kholmann (2006):

> [Ninety] percent of terrorist activity on the Internet takes place using social networking tools. These forums act as a virtual firewall to help safeguard the identities of those who participate, and they offer subscribers a chance to make direct contact with terrorist representatives, to ask questions, and even to contribute and help out the cyber-jihad (para. 26).

It is important to preface this sub-section by stating that while traditional theories of radicalization are imperative to examine when discussing the overall nature of radicalization in the online setting, the current research design does not allow for such a direct association to be made between that of online discourse and perceived radicalization. That being established, understanding radicalization in the online setting – a concept examined by various other scholars – remains important to the overall discussion brought forward by this thesis. As such, theories and literature pertaining to the online setting, extremism, and radicalization, will be discussed.

The general topic of online forums has been researched fairly thoroughly in relation to the presence of violent and radical speech found online. Chalothorn and Ellman (2013), in their analysis of radical content found within web forums, discussed the importance of forums in relation to ease of communication, dissemination, and radicalization. Chalothorn and Ellman's (2013) results elicited significant outcomes

pertaining to the existence of radical language present on one of the two forums examined, indicating the need for further analysis of online web forums in relation to violent discourse as a possible means of radicalization. While Chalothorn and Ellman (2013) found that there was radical and violent speech taking place in online forums, they did not measure the extent to which it developed over time, if at all. Such an examination would be important for understanding whether or not individuals start off neutral in their sentiment and become more negative or violent over time, or if they started off violent and remained violent throughout their time on the forum.

Silber and Bhatt's (2007) perception of the current threat facing Americans, post 9-11, acknowledges the dangers associated with the spread of radical and extremist beliefs through the Internet – specifically, "radical Internet websites and chat rooms, extremist videotapes and literature, [and] radical speeches by extremist Imams" (p.16). These radical forms of social media, according to Silber and Bhatt (2007), are strategically placed within online Muslim communities of a more vulnerable nature, ensuring their sentiments have a greater impact on all those who come across it. While Silber and Bhatt (2007) acknowledge the importance of examining sentiments found throughout social media outlets, their work was not designed to take the next steps of understanding the extent to which such language can be found online, and whether or not it is developing within individuals.

Huffaker (2010) examined 'online leaders' and the influence they have on other forum members over time. In examining the role emotional affect (both positive and negative) plays in online social interactions, it was discovered that both extremes of emotional affect encourage feedback and reciprocity from other online individuals (Huffaker, 2010; Smith and Petty, 1996). A certain level of intensity in emotion creates almost an obligatory effect in individuals whereby they feel the need to respond. In the context of an online forum, such interactions between 'opinion leaders' and other forum users could be understood as individuals slowly developing their style and intensity of discourse over time – as they respond to others, and inevitably alter their own perceptions and opinions. Huffaker (2010) does not, however, examine these trends in sentiment over time, as the current study seeks to do; but simply determines whether or not certain individuals have the ability to influence others – specifically in relation to the

position they hold in their online community.

2.3. The Internet, Connectivity of Individuals, and Spread of Extremism

Scott and Carrington (2011) consider the Internet to play a pivotal role in the spread of radical and extreme beliefs and opinions, as it allows individuals to meet one another, "span different geographic boundaries, share information, reinforce ideology, and coordinate activities to achieve mutual goals" (p.258); a view shared by Chen (2006) and Hegghammer (2006). Computer networks and means of online communication can easily be expressed and interpreted as a network of individuals connecting (Wellman, 1997).

The Internet allows for a virtual community whereby people form new ties and social bonds, creating a second network that may impact the process of radicalization (Bouchard and Nash, 2015; Ducol et al., 2015; Sageman, 2004; Horgan, 2008). The traditional offline community was initially thought of as being substituted for an online community through various social media and online communication tools (such as chat rooms, web forums, online blogs), whereby people were becoming immersed in both sparse communities, as well as densely connected online communities (Wellman, 1997). Yet, more recent research has shown that online communities do not necessarily replace offline communities, but instead assimilate into them (Wellman et al., 2002). According to Bowman-Grieve (2009), "virtual communities are real social spaces and provide access to previously closed communities of terrorist supporters" (p.990). Online "forums can provide validation for personal grievances, which in turn may result in indviduals deepening their involvement with the extremist cause" (Ducol et al., 2015, p.16).

Deep and strong social bonds are formed online, and with socialization processess increasingly taking place online, "virtual communities…are [becoming] key social arenas for the formation of the types of interpersonal bonds that are central to radicalization processes" (Ducol et al., 2015, p.16). Since this virtual community holds no

physical ties to the outside world, those partaking in the virtual community idealize it. To illustrate, Sageman (2004) depicts the existence of a unique "bond between the individual and [their] virtual Muslim community" (p.161). The real-time effect of online Muslim chat rooms and forums, coupled with the lack of real physical societal constraints, allows for various forms of extreme and violent discourse to take place (Sageman, 2004). It is this extreme discourse that serves as the focal point for the current study.

While many of the above studies speak to the importance and influence of online communications between individuals in forum settings – specifically violent narratives – there is a lack of literature addressing the extent to which these behaviors develop over time. Similarly, few studies take into account the possible effects of age in the development of discourse over time, and how such a variable could play into the importance of examining the development of online sentiment.

Sentiment found on Muslim chat rooms and online means of communication typically lend themselves to the 'average Joe': most everyone can understand the debates and discussions at hand. As a result of this level of simplicity, Sageman (2004) argues the Salafist arguments to be of great influence on these chat rooms, as they are simple positions from the original Salafi practices (p.162). An increase in virtual communications coupled with an unstructured community of 'hard-core' believers has led to an ominous situation in which individuals can become easily manipulated and even indoctrinated, online (Ryan, 2007).

While there appears to be a gap in literature examining the extent to which extreme negativity can be found as developing within individuals via online discussion forums, it is imperative to better understand as prolonged extreme negativity has been said to lead to frustration, anger, aggression, and even violence (if not alleviated) (Fredrickson, 2004). In doing so, it would be crucial to first understand the literature surrounding the development of youth and young adults as manifested in the online setting.

2.4. Offline versus Online Development

There seems to be no end to the amount of literature that can be found in support of professional development achieved through online communities (interchangeably used with 'virtual communities') (Vavasseur and MacGregor, 2008; Armstrong and Hagel, 2000). The ability to grow and develop in matters such as professional networking, academia, technology, and other practices sought to further the knowledge and experience of a working professional (throughout various fields) seems to be a topic of great interest to many researchers. While the case could be made that professional development would in fact constitute a form of personal development (Breen, Lindsay, Jenkins, & Smith, 2001), there does not appear to be ample literature that speaks to the effects of personal (or emotional) development in the online context.

Furthermore, the development of online communities (as a whole) has been researched extensively (Wilson and Peterson, 2002; Agre and Schuler 1997; Hamman, 2000; Fernback, 1999), but with limited focus on the development of individuals residing within those online communities. So too has the development of interactions and networking *between* individuals in online communities (Smith and Kollock, 1999), but not *within* individuals as they partake in communications and online interactions with others over time. As such, there appears to be a gap in literature pertaining to within individual development online (over time) requiring further explication and examination. The current study will seek to fill this gap.

That being established, Turkle (1995) does in fact support the notion that personal development in the online context is quite feasible, and serves to aid community participants in their attempts to explore and build their identities. According to Turkle (1995), "online communities are a safe environment in which to express and explore ones own identity or even investigate other online personae" (p. 311). Such findings encourage the need for further research, in extension of that already conducted, with regards to online personal development within the individual over time – specifically in the context of online web forums and chat rooms.

There is evidence to suggest that the overall nature of relationships developed offline (via face-to-face interactions) are similar to those developed online (predominantly through forums, chat groups, discussion threads, and social media in general) (Wellman and Gulia, 1999). Such a finding suggests people to be quite capable of developing in the online setting; although, this finding does not apply to *within*-individual personal development so much as it does *between* individuals, further supporting the need for continued research into such a topic.

The general topic of youth development in the more traditional offline context has been thoroughly researched by scholars and practitioners in various fields including, but not limited to, psychology (Lerner, Boyd, & Du, 1998; Cassell, Huffaker, Tversky, & Ferriman, 2006), criminology (Loeber, 1990; Donker, Smeenk, and van der Laan, 2003; Cernkovich and Giordano, 2001), psychiatry (Guan and Subrahmanyam, 2009), medicine (Shek and Yu, 2011), and social sciences more generally (Berson and Berson, 2005). Regardless of the discipline, a common theme that emerges seems to be the importance, and significance, of transitioning into adulthood (or developing throughout the general time period of late teens/early twenties) on youth behaviour (Cernkovich and Giordano, 2001; Lerner and Galambos, 1998).

The emergence of the Internet has brought with it new complications and facets for youth development, with some academics suggesting this new phenomenon to be detrimental to the maturation process (Guan and Subrahmanyam, 2009), others stating its ability to "enrich and extend life experiences" (Berson and Berson, 2005, p.29), and most believing the Internet to serve both positive and negative roles (Subrahmanyam and Greenfield, 2008). One fact that most academics will agree upon is that of youth vulnerability in the online setting (Ryan, 2007; Berson and Berson, 2005; Young, 1998; McKenna and Bargh, 2000). According to Berson and Berson (2005), "the permeation of the Internet into the lives of youth can expose them to information with questionable legitimacy, ideas that can be contrary to positive behaviors, and messages that are intended to manipulate their actions or beliefs" (p. 30). In addition, the biological inability for youth to engage in judicial decision-making during their childhood and teen years only serves to encourage impulsive actions in a setting for which they believe to be

artificial, without recognizing the impact and influence of the world they immersed themselves in (Berson and Berson, 2003).

While the risk factors for youth engaging in online interactions and activities have been fairly well researched and documented (Ryan, 2007; Berson and Berson, 2005; Young, 1998; McKenna and Bargh, 2000), the developmental aspects of youth maturation (transitioning from adolescence into adulthood) have yet to be comprehensively examined in relation to the online setting. Additionally, some discuss the effects of Internet exposure on youth development offline – specifically that of online pornography negatively impacting adolescent sexual development (Ybarra and Mitchell, 2005), as well as online risk factors more generally (Guan and Subrahmanyam, 2009) – but do not address the extent to which youth development can be manifested online. Thus, the current study will seek to fill this gap in literature by drawing focus to individual development over time, online. Life Course Theory (LCT) provides conceptual guidance in achieving this objective.

2.5. Life Course Theory (LCT)

Over the years, the manner in which the radicalization process is understood has changed and developed to include both offline and online factors. This particular process lends itself to Sampson and Laub's Life Course Theory (LCT). Over the past few decades, LCT has been used in varying fields of research by countless academics (Sampson and Laub, 1990; 1992; 1996; 1997; Laub and Sampson, 1993; Elder, 1994; 1998; Elder and Rockwell, 1979; Hirschi and Gottfredson, 1995; and Nagin, Farrington, and Moffitt, 1995).

Life Course Theory, as stipulated by Sampson and Laub (1993), emphasizes the importance of two fundamental concepts: trajectories and transitions. Trajectories are synonymous with individual pathways throughout the lifespan, developing and changing based on various transitions and turning points. Transitions, as defined by Elder (1985), "are marked by specific life events that are embedded in trajectories and evolve over shorter time spans" (Sampson and Laub, 1993, p.254). These transitions are

predominantly age-graded – life events such as, entrance into high school or university, marriage, parenthood, sickness and or death; although age may not always be a factor as the timing of one's life events may be early or late. Many scholars consider the "timing and sequencing" (Sampson and Laub, 1993, p.254) to be of vital importance when examining the effect, they have on later behavior – if transitions do not occur when they are supposed to, difficulties may ensue later in life (Caspi, Elder, and Herbener, 1990; Hogan, 1980).

Life course criminology allows for the explication of temporal factors in relation to the radicalization process, and "seeks to uncover trajectories or "turning points" which form critical periods in the process of violent development" (Hamm, 2012, p. 176). For instance, Rutter, Quinton, and Hill (1990) stated "marital support in early adult life provided a protective mechanism that inhibited deviance" (in Sampson and Laub, 1993, p.14). This finding was specific towards a *nondelinquent* partner acting as a protective factor for crime and deviance, specifically when adjusting for the difficulties experienced in childhood (Rutter, et al., 1990, p.152) – a finding similar to the one found by Sampson and Laub (1990) whereby commitment to various institutions were said to act as protective factors of deviance regardless of past childhood deviance. The impact certain life events, or transitions, can have on a life trajectory is further supported by Sampson and Laub's (1990) study on transitions into adulthood, and the social ties associated with it – specifically in relation to university education, marriage, and job stability.

This is derived from the concept that "turning points in the adult life course matter, and that a change in life direction may stem from macro-level events largely beyond individual control (e.g., war)" (Sampson and Laub, 1996, p. 347). Such events in the present time might consist of the conflicts occurring overseas in the Middle East – IS in Iraq and Syria; the increasing tensions and conflict between Hamas and Israel – events taking place in the Ukraine with pro-Russian separatists, and any other political and/or ideological conflict that may have a great impact on an individual. Considering the variety of pathways that exist in the process of radicalization, it would be prudent to examine possibly one of the most easily accessible, and newly-developed, pathways that any individual could partake in: the Internet. While the Internet has been largely under-researched in relation to the process of radicalization, the current study will help in

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filling this gap in literature by drawing from LCT.

The current study seeks to better understand the emergence and development of extreme negativity in the online setting. Part of that task requires a better understanding of the various pathways and extraneous factors that may influence an individual's life trajectory (towards extreme negativity). Borum (2011) describes radicalization as a lengthy process in which "many pathways into and through radicalization exist, and each pathway is itself affected by a variety of factors" (p.15). These pathways, according to LCT, are created and re-directed by various transitions and turning points throughout the life, and are contextualized by "age, cohort effects, historical context, and the social influence of age-graded transitions" (Sampson and Laub, 1992, pp.254- 255). The interaction effect between transitions and adaptations to those transitions is important since the outcome, and future direction of the trajectory, is heavily dependent on the way in which a transition is responded to (Sampson and Laub, 1993). Based on the response, or manner of adaptation to a transition, an individual will either continue on the same path (trajectory), or encounter a turning point, which guides them down a different path – altering the direction of their life trajectory. Life factors themselves – regardless of how unimportant they may seem to the outside person – will be important and life changing to the individual experiencing them. Such factors could be common age-graded transitions, or non-age-graded transitions.

Based on the LCT literature, the most important variables to take into account are "school, work, the military, marriage, and parenthood" (Sampson and Laub, 1993, p.254). Such variables have found support by Rutter et al. (1990) and Sampson and Laub (1990). These variables would need to be extended slightly in order to account for the online context these users are immersed in. While there are various turning points and transitions, only 'entrance into adulthood' and 'entrance into university' will be considered within the context of this study.

In addressing the significance of entrance into adulthood on the overall life course, it is important to consider the research of Sampson and Laub (1990), which stipulates that social bonds developed in adulthood seem to have a fairly significant effect on modifying (or reducing) criminal and deviant behaviour during adolescence.

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While youth have a tendency to age out of certain life behaviors and mentalities (as they mature), the same cannot necessarily be said for that of negativity (or negative affect). Literature to date seems to be fairly confounded on this topic, with some studies suggesting negative affect to increase with age (Ferring and Filipp, 1995), others finding support for a decrease in negative affect over time (Mroczek and Kolarz, 1998; Gross, Carstensen, Pasupathi, Tsai, Götestam Skorpen, & Hsu, 1997; Vaux and Meddin, 1987), and several reporting no change at all (Smith and Baltes, 1993). Thus, while criminal activity seems to follow an age-crime curve (Moffitt, 1993; Loeber, Menting, Lynam, Moffitt, Stouthamer-Loeber, Stallings, Farrington, & Pardini, 2012), it is unclear whether negativity and frustration will do the same.

2.6. General Strain Theory (GST)

Life Course Theory and General Strain Theory have rarely been used in conjunction with one another (Agnew, 1997). While academics have a tendency to examine strain and frustration in adolescents over the life course, many fail to incorporate the traditional factors associated with life course theory itself – such as transitions, turning points, adaptations, and changing life trajectories (Agnew, 1997). However, for the current study, it would seem feasible (almost natural) for the two theories to work in conjunction with one another. As LCT stipulates the presence of turning points and transitions throughout one's life trajectory (Sampson and Laub 1993; Elder, 1985), it is expected that strain and frustration will be likely causes of, or even responses to, more traumatic and intense turning points.

In order to understand how frustration and anger can potentially be related to violent behavior, we turn to Robert Agnew's General Strain Theory. Anger is a vitally important emotion for GST, and is considered by Agnew (1992) to be a key factor in the development of criminal behavior (Froggio, 2007). Anger is said to be a result of experiencing subjective strain whereby negative emotions accumulate, and feelings of intense negativity are produced. It is important to note, however, that the extent to which a negative emotion is experienced (if at all), is highly dependent on the individual and their personal attributes. For some, an emotion such as anger has the ability to "increase

the individual's level of perceived injury, create a desire for revenge, motivate action and lower inhibitions" (Froggio, 2007, p.389), and has been said to result from underlying feelings of intense frustration and aggression (Berkowitz, 1989; Dollard, Doob, Miller, Mowrer, & Sears, 1939). Thus, it becomes important to understand the extent to which extreme negativity is taking place in these online forums, as this negativity may in fact reflect the development of frustration, anger, and even violence to take place.

There are many different types of strain that can be experienced by anyone during a turning point throughout the course of their life, and can elicit a steep directional change in the life trajectory: '*familial strain*' (marriage, divorce, separation, children) (Umberson, Williams, Powers, Liu, and Needham, 2006); '*sickness/death*' (of a loved one, or of an important religious/political figure who is idealized); '*career strain*' (problems in current job, being unable to obtain a job) (Landsbergis, Schnall, Pickering, Warren, Schwartz, 2003); '*financial strain*' (lack of steady income) (Kahn, and Pearlin, 2006; Agnew, 2010); '*religious strain*' (disputes with Imams, disagreements with other practicing Muslims, believing mainstream Islam is too "soft"); and even strain related to '*geographic relocation*', which many traditional life course theorists have thought to be an important life event related to desistance from crime (Farrington, 2005). It has been determined that both marital strain (Umberson, et al., 2006) and unrelenting financial strain (Kahn, and Pearlin, 2006) are commonly related to increasing health deficiencies (or increased sickness) over the life course, highlighting the fact that many sources of strain are not mutually exclusive.

For example, the transition of minors entering into adulthood can be particularly stressful for many youth, both in their academic and personal lives. The ability to take on a new role as an adult, make your own choices and live your life however you so choose (without the direct interference of parents/authority figures) brings with it the inevitable experiencing of new stresses. According to Agnew (1997), it is during this time that youth may find themselves experiencing greater amounts of strain as they enter into many more situations requiring an increased level of responsibility. In return, an increase in responsibility often causes stress and frustration in youth (Froggio, 2007). Agnew (1997) subsequently makes note of the vulnerability accompanying the years of adolescence since the cognitive capabilities are in the process of developing, but have

yet to fully form – meaning, youth have a limited ability to see the 'bigger picture' and fully comprehend the situations they find themselves in. This inability to manage (or form effective coping strategies) and identify the source of stressful situations/events is considered by Agnew (1997) to be an additional strain on the youth, and allows the individual to experience negative emotions – the least of which are frustration and anger (Froggio, 2007, p.411).

2.7. Aim of the Study

Some scholars argue that the Internet can act as a means of alleviating pressure and strain in one's life. The Internet provides the individual with a relatively safe environment by which they can interact with others of their choosing, and essentially control which environment they decide to engage in (Leung, 2006). Others consider the Internet to exacerbate, or even create stressful situations for individuals. Could it possibly be that people are becoming strained and frustrated as a result of being online, and conversing with other individuals? Or, are people turning to the Internet to absolve some of their strain and frustration from everyday life, and in rare situations, meeting other like-minded individuals who in turn, encourage violent behavior?

The current study will employ several fundamental concepts drawn from LCT and GST so as to address the development of negative emotions in the online context – specifically whether certain turning points, such as entry into adulthood, are associated with a change in the nature of the sentiments expressed online. The research question will be answered via a mixed methods approach.

The extent to which individuals vary in their sentiment over time will be determined quantitatively via the use of SentiStrength, a sentiment analysis software that attributes specific scores to narratives from the extremely positive to extremely negative (Kennedy, 2012). Such a technique has been used and validated in multiple studies (Neumann, 2013), including online narratives like those found on Twitter (Beres, 2012). After graphing each user's sentiment trajectory, those who display significant peaks or drops in their trends will be extracted for further analysis. The content of user

posts during these peaks and/or drops in sentiment will be analyzed qualitatively to extract the themes emerging from their online narrative over time – themes related to turning points and life transitions, most notably that of entrance into adulthood.

Chapter 3.

Data and Methods

3.1. Forum Selection

Since the events of September 2001, young Canadian Muslims, more than non-Muslims, have learned to develop their identity in a society that sometimes points to their religion as having a role in some major terrorist events around the world. For this reason, three forums both open to the public and focused on Islam-related issues were selected: Islamic Awakening (IA), Shia Chat, and Ummah. Although the study aims are broader, known terrorists have also named Islamic Awakening as a forum they frequent (Berger, 2011). The research was purely non-participant observation: a public forum was used (no password or log in needed), I did not intervene in any of the conversations, and I anonymized user pseudonyms when reporting.

3.2. Data Collection

Data was collected using software called the MITS Crawler, which is a custom-created web-crawler designed in part to capture the content posted to openly accessible discussion forums. It was designed by Dr. Richard Frank, and is housed within Simon Fraser University for use by the members of the International CyberCrime Research Center (ICCRC). The software captures information from a user-selected forum by downloading all its webpages, parsing the page apart with the use of forum-specific 'rules' to capture all the useful information present on the forum, then storing it in a corresponding database. For an overview, see Figure 3.1. The database is designed to resemble the structure inherent to discussion forums and is navigated in the same way: each forum has many sub-forums, which in turn have many threads of discussion, each

with at least one post. The end result is a collection of copied forums that, if possible, are updated daily with the new posts from the original discussion forum. For further details, see Scrivens, Davies, Frank, and Mei (2015), and Macdonald, Frank, Mei and Monk (2015).
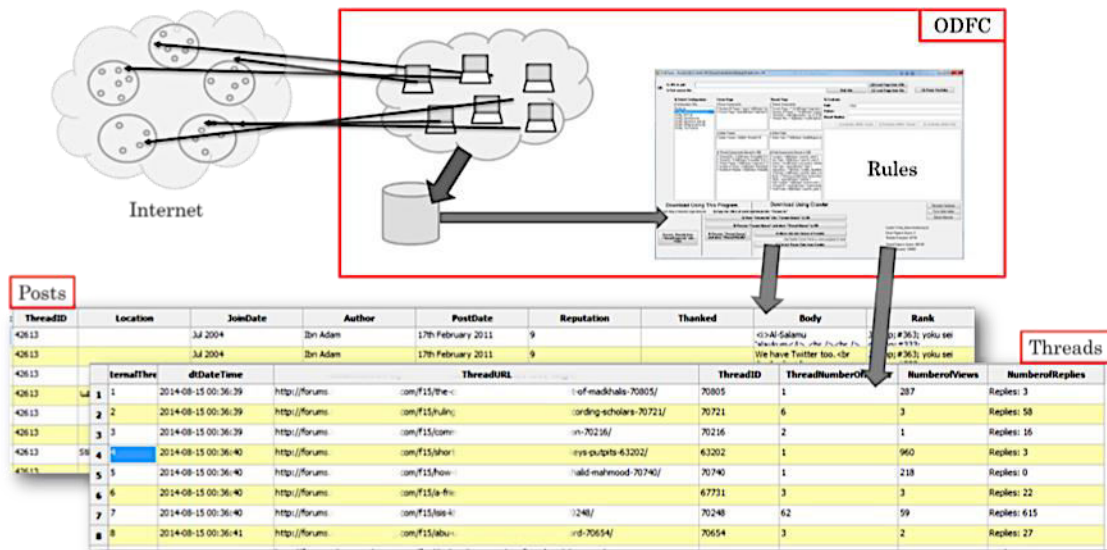
Figure 3.1.   A summary of the data capture process (Macdonald et al., 2015)

3.3. User Selection

Users were selected from all three forums (Islamic Awakening, Shia Chat, and Ummah) in varying ways, as each forum presented unique restrictions surrounding the ability to search for members, determine their age, or establish current/previous geographic location. Shia Chat was the most liberal with their privacy settings, allowing for members to be identified based on geographic location, or even simply keyword searches (such as "Canada", "Canadian", "Cana", "West", etc.). In addition, Shia Chat had a sub-forum entitled "Introduce Yourself Here!" whereby thousands of members introduced themselves, commonly revealing detailed information about themselves – including real name, age, current geographic location, birth location, relationship status, and other personal information (if they so chose). Manual analysis (i.e. reading through the threads and individual comments) allowed for over 250 users to be identified and extracted for the current study.

The Islamic Awakening and Ummah websites were slightly more challenging to navigate, as both forums restricted their privacy settings to the extent of being unable to search for/view members based on keywords or variables. These two forums were analyzed several months after Shia Chat. During this time, the MITS Crawler was being officially established and became available for use. As such, the MITS Crawler was employed to search for users based on specific keywords (identifying their Canadian tie and approximate age) in both IA and Ummah. Slightly less than 100 users were identified and extracted (in each forum) for the current study.

Of these users identified and extracted, a total of 96 individuals who either self-identify themselves as Canadians, or had mentioned living in Canada at one point in their lives were sampled from these forums. Forty-eight (50%) of these individuals started on their forum before the age of 19 - they were considered to be the sample of "minors". Forty-eight Canadian minors and forty-eight Canadian adults (as a control group) were sampled from the forums IslamicAwakening, Shia Chat, and Ummah. All users sampled were required to meet the following criteria: 1) be on the forum for at least 12 months 2) have at least 100 posts. The 96 users in the sample were the only ones fitting these criteria. Additionally, those who were considered minors were required to meet the following criteria: 1) they needed to be under the age of 18 at first post, and 2) active on the forum through the transition into adulthood, whereas those who were considered adults needed to be over the age of 18 at first post.

3.4. Variable Selection

The variables "years on forum", "number of posts", "age at join", and "age today" were extracted for individual users (based on profile details made available by each forum), and calculated so as to compare and contrast between the minors and adults groups. See sub-section 3.5 for further explication of post selection. "Age at join" was extracted either directly from the forum (if available), or searched for using a keyword search via the MITS Crawler. "Age today" was simply a calculation of "age at join" plus the appropriate years to reach 2015 (as analysis finished within this year).

3.5. Post Selection

Posts for each user sampled were extracted through the MITS Crawler. The posts were then used to conduct sentiment analysis and average sentiment scores per 6-month time periods of analysis. In total 282,411 posts were extracted and analyzed. The time period whereby posts and users were extracted from each forum was between 2002 and 2015 inclusive (14 years). The year 2002 was chosen as a start date since this was the year Shia Chat opened as a public forum, and was the earliest date from which users and posts could be extracted.

Table 3.1 presents the breakdown of minors and adults from all three forums, further specifying numbers associated with minors before and after they became an adult. The total number of posts attributed to each user, and total number of posts for each forum.

Table 3.1.   Breakdown of MINORS and ADULTS from all three forums

	n	ShiaChat	%	Islamic Awakening	%	Ummah	%
MINORS	48	37	77.1	4	8.3	7	14.6
Before-19	48	37	77.1	4	8.3	7	14.6
After-19	33	23	69.7	4	12.1	6	18.2
Total Posts	141,155	96,702	68.5	10,153	7.2	34,300	24.3
ADULTS	48	29	60.4	9	18.8	10	20.8
Total Posts	141,887	40,944	28.9	6,552	4.6	94,391	66.5
MINORS & ADULTS	96	66	68.8	13	13.5	17	17.7
Total Posts	283,042	137,646	48.6	16,705	5.9	128,691	45.5

For both minors and adults, the majority of users originate from ShiaChat, followed by Ummah, and IA. For adults, however, Ummah forum members are more active, on average, than those found on the other two forums. Approximately 68.76% (or 33/48) minors continued to post after they became an adult.

3.6. Analytic strategy

The current study tracks the evolution of sentiments over time. To do so, I used SentiStrength, after which the analysis can be divided into three main steps: 1) Before/After Analysis; 2) Analyzing Sentiment Consistency by Individual; and 3) Qualitative Analysis. Given all the steps involved, it is clearer to describe each type of analysis and the measures used for each in different subsections, as done below.

3.6.1. SentiStrength (Sentiment Analysis)

Sentiment score is a measure that quantifies the emotionality and positivity/negativity of content. This measure provides a quantitative understanding of the content of information being found in online forums – specifically, the extent to which positive and negative sentiment is present. The sentiment analysis program producing the score aims to automatically extract the emotions or attitude of a text, or narrative, and assign a value that ranges from the 'negative' to the 'positive' (Kennedy, 2012). SentiStrength is a computer program that analyzes scripts of sentiment (verbal discourse) and attributes a score to each word based on a polarized scale of positive to negative connotations associated with each word (Kennedy, 2012). This program has a built in dictionary whereby every word has a pre-determined score of positivity or negativity, and as such, will average out the sentiment score for the portion of data being examined. Text analysis is incredibly useful at both the micro and macro level as it allows for "thousands of posts [to] be sifted [through] and wider trends and dynamics [to] be discovered" (Neumann, 2013, p.450). Individual sentiment scores were determined for each post collected over the years spent on the forum, averaged into one score per 6-month time periods of analysis (first 6 months in the year, and second 6 months in the year), and then sorted by date in order to plot these points on a chart and examine the trend in sentiment over time.

3.6.2. Before/After Analysis

The goal of before/after analysis is to better understand the extent to which user sentiment trends develops over time, specifically whether or not the transition into

adulthood encourages a change in sentiment (whether that be an increase in positivity, an increase in negativity, or neither). For the users who started as minors, the before/after analysis will test whether there is a statistically significant difference between a minors sentiment scores during their youth (before-19 years old) compared to their sentiment scores after they turn into an adult (after-19).

For comparison purposes, the adults group will be examined as well. Since this group does not have the turning point of adulthood (as they began on their forum as an adult), their first 50% of posts will be compared to their second 50%. A Paired Sample T-test will be conducted on 33 minors who had both before and after sentiment scores, as well as the 48 adults with their first/last 50 percent of sentiment scores.

3.6.3.   Analyzing Sentiment Consistency by Individual

It was important to classify sentiment trajectories for consistency. The trajectories showing above average variations in sentiments were selected for further qualitative analysis, to examine if the change in sentiment could be specified in more concrete terms (more below). Sentiment trends were graphed for each user (n=96) based on 6-month time periods of analysis.

Sentiment ranges were generated for each minor (n=48) and adult (n=44), and then the median determined from the list of ranges (minors median=4.95; adults median=8.32) – see Table 3.2. By using the median (and not the mean, which was overly impacted by outliers), it was possible to differentiate between consistent and inconsistent trends in this sample. The adults group had four individuals who did not possess enough data points to generate a range; thus, the total number of adults used for the current analysis was 44.

Table 3.2.   Descriptive Statistics of Sentiment Ranges – MINORS & ADULTS

	Mean	Median	Max. Range	Min. Range	Ave. Range	St. Dev.
MINORS (*n=48*)	14.74	4.95	356.00	-5.71	361.71	51.20
ADULTS (*n=44*)	12.95	8.32	54.49	0.64	53.85	12.70

In order to determine the sentiment trajectory, the median range of sentiment per individual was used. If an individual's range fell outside this standard number (4.95 for minors, 8.32 for adults), then it could be understood that their sentiment scores were varying to a degree that would classify their trajectories as being "inconsistent". If an individual's range fell within this standard number, then it could be inferred that the individual had a somewhat "consistent" trajectory.

The following figures (Figures 3.2 to 3.6 – taken from the sample of minors) provide examples of individuals that displayed one of the five possible types of trajectories after the nature of the sentiments displayed (positive or negative) are taken into account.
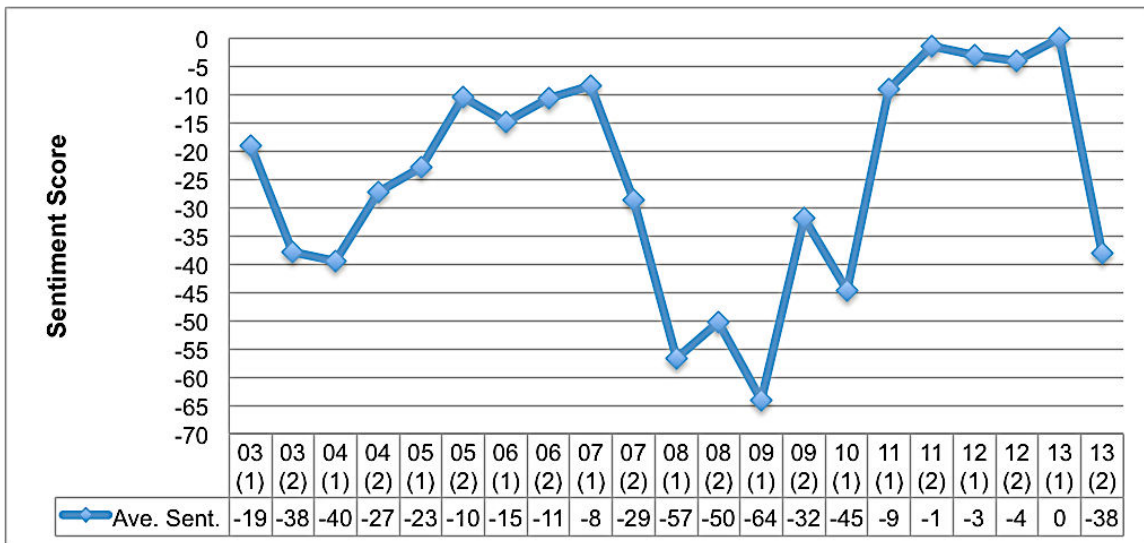
Figure 3.2.   USER M-8 – Inconsistent Sentiment Trend (Example)

Figure 3.2 presents the sentiment trajectory of user M-8, a trajectory classified as "inconsistent". User M-8 has a range of 64.07 (many standard deviations outside the standard range of 4.95) and there are noticeable peaks and drops in sentiment (most notably the years 2004, 2007, 2008, 2009, 2011, and 2013).

	2010 (1)	2010 (2)	2011 (1)	2011 (2)	2012 (1)	2012 (2)	2013 (1)	2013 (2)	2014 (1)	2014 (2)	2015 (1)
Ave. Sent.	0.25	-0.36	-1.37	-1.69	-3.26	-1.83	-2.50	-2.77	-3.09	-2.56	-1.94

Figure 3.3.   USER M-4 – Consistent Sentiment Trend (Example)

Figure 3.3 presents the sentiment trajectory of user M-4, a trajectory classified as "consistent". User M-4 has a range of 3.35 (within the standard range of 4.95), and a fairly consistent trend in sentiment from 2010 to 2015.

"Consistent" trajectories were further broken down into the following sub-groups: 'consistent / negative' – those displaying consistently negative sentiment scores; 'consistent / positive' – those displaying consistently positive sentiment scores; and consistent / neutrality' – those varying from positive to negative sentiment scores over the years, essentially remaining close to the 0 (or neutral) mark. See Figures 3.4, 3.5, and 3.6.

	2002 (2)	2003 (1)	2003 (2)	2004 (1)	2004 (2)	2005 (1)	2005 (2)	2006 (1)	2006 (2)	2007 (2)
Ave. Sent.	4.22	2.73	1.62	2.34	2.41	1.71	1.61	2.68	5.88	5.00
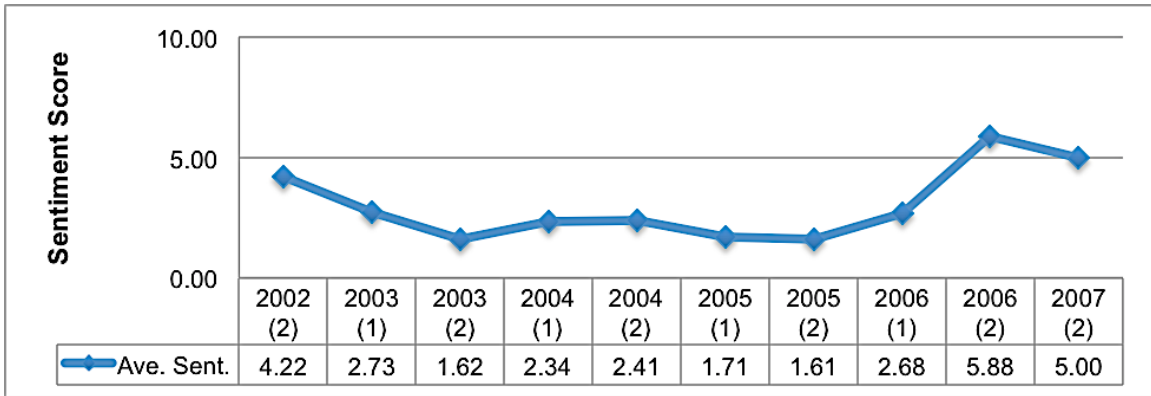
Figure 3.4.   USER M-20 – Consistent/Positive Sentiment Trend (Example)

Figure 3.4 presents the sentiment trajectory of user M-20, a trajectory classified as being consistently positive (determined by each data point residing within the standard range of 4.95), displaying overall positive sentiment scores.

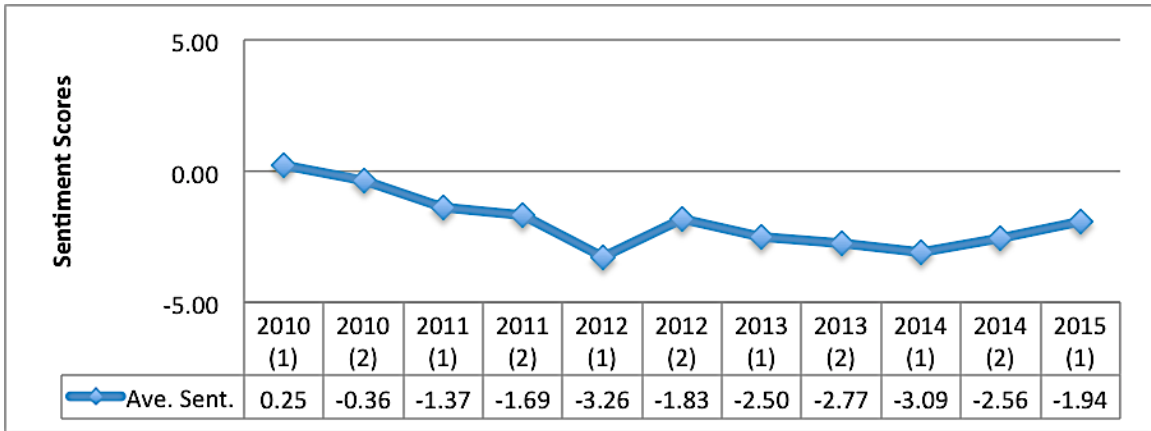|	2004 (1)	2004 (2)	2005 (1)	2005 (2)	2006 (1)
Ave. Sent.	-7.60	-10.57	-7.81	-9.77	-8.45
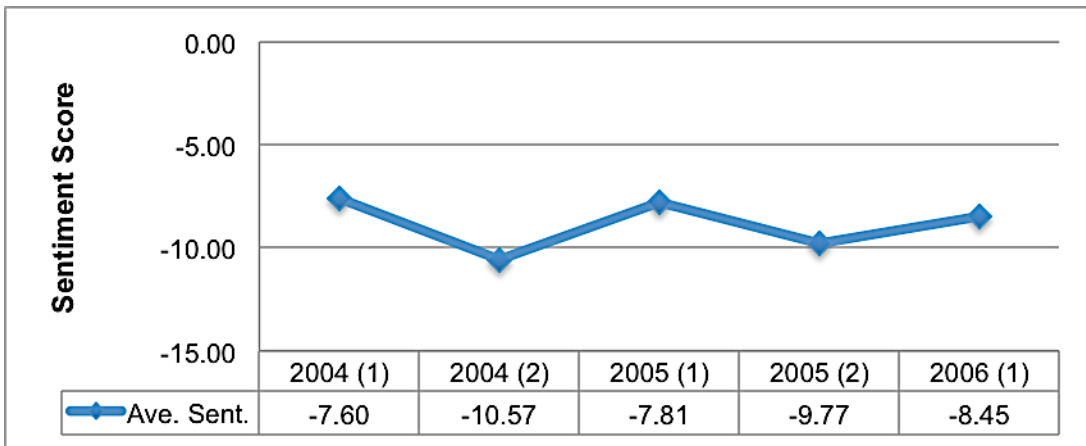
Figure 3.5.   USER M-26 – Consistent/Negative Sentiment Trend (Example)

Figure 3.5 presents the sentiment trajectory of user M-26, a trajectory classified as being consistently negative (determined by each data point residing within the standard range of 4.95), displaying overall negative sentiment scores.

	2011 (1)	2011 (2)	2012 (1)	2012 (2)	2013 (1)	2013 (2)	2014 (1)	2014 (2)
Ave. Sent.	-0.50	-0.59	-0.87	-1.92	-0.32	0.69	-0.31	0.19
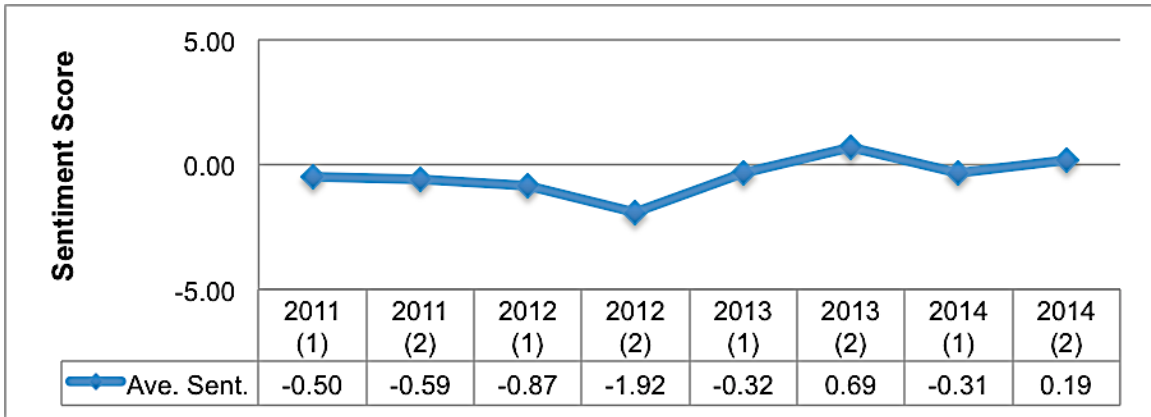
Figure 3.6.   USER M-13 – Consistent/Neutrality Sentiment Trend (Example)

Finally, Figure 3.6 presents the sentiment trajectory of user M-13, a trajectory classified as being consistently neutral (determined by each data point residing within the standard range of 4.95), displaying varying sentiment scores of positivity and negativity.

3.6.4.   Qualitative Analysis

The current thesis employed the qualitative coding technique of content analysis – specifically, conventional content analysis and directed content analysis. As will be further exemplified in Chapter 4, these two qualitative coding schemes were chosen for their ability to best interpret and reveal meaningful information from the data examined. While both techniques can be considered types content analysis, they differ slightly in their approaches and overall products. Conventional content analysis allows for coding categories to be determined as per the more 'traditional' understanding of qualitative analysis – allowing the data to reveal information (as opposed to seeking it out) (Hsieh and Shannon, 2005). Directed content analysis takes the opposite approach, beginning with a theory or findings established from prior research, and allowing the coding to be guided as per the pre-established direction of the theory / research (Hsieh and Shannon, 2005). In other words, directed content analysis seeks out information from the data. For the purpose of the current thesis, the term 'qualitative analysis' will refer to both conventional content analysis and directed content analysis – unless otherwise specified.

All users in the 'inconsistent' or 'consistent / negative' categories (both minors and adults) were considered for further qualitative analysis, after which content analysis was conducted in order to identify turning points evident in each user's online trajectory, as well as how these affect individual sentiment trends. Only those displaying negativity in their sentiment trajectory were considered since the current study seeks to address the development of negative emotions in an online context, as opposed to positive emotions – a limitation for the study (see Chapter 6). Furthermore, qualitative analysis allows for former classifications (based on sentiment trends) to be validated (or invalidated).

The online MITS crawler was used to search for keywords and phrases in individual user trajectories. Based on the posts observed throughout the year under examination, it was possible to determine transitions the user already entered into (such as adulthood or university), and transitions they were currently entering into through manually searching for key words/events within all of their posts. Gaining a deeper understanding of the life course changes and obstacles a user experiences, in relation to their sentiment trajectories and posting behaviors, allowed for a clearer understanding of the types of individuals that could be found in each trajectory group, and possibly why they were found in that group.

Determining specific transitions and turning points in an online context would require a fairly accurate prediction of when events occurred. In relation to online Islamic forums, users tend to openly express personal details about themselves if they feel the need to do so. There is no guarantee each user will disclose the desired information necessary to determine if, and when, various turning points and transitions occurred over their life course. As such, the process can be quite arduous, and possibly misleading – if certain information is left undiscovered. In such a situation, the effects of each turning point and life transition within the user's online trajectory may be either over stated or under stated. Unidentified life events can be considered one of the most impactful limitations of applying life course theory to the online context.

In contrast to this view, however, is the understanding of online users only releasing personal information to the open web that has impacted their lives. If the

respective life events were not of significant importance to the individual, there would be little reason to disclose the information to others online. Even if it were feasible to determine life events via the Internet, it may be somewhat of a leap to assume the effect these events have on the individual without being able to directly speak with, and question, the user. Life events will have varying levels of impact on an individual depending on myriad of factors, some of which include personality characteristics, societal factors, psychological factors, and familial factors (Sampson and Laub, 1993; Elder, 1994).

Qualitative coding (and analyzing) of individual posts occurred within 6-month intervals – to match that of the quantitative, sentiment analysis. During these time periods, various turning points and transitions were noted (see sub-section below), as well as other important factors such as development of interests/opinions and beliefs, the amount of posts exhibiting frustration or anger throughout time on the forum, and any other key information (posts) that may have been of interest and relevant to the study. The goal was to qualitatively understand the development of user sentiment over time by contextualizing statements (or posts) made by each user. In some instances, it was necessary to retrospectively read through the thread in order to gain a better understanding of the post made by the user under analysis – in other words, understanding the true nature of the post based on context (a factor that is unable to be accurately accounted for by SentiStrength).

Uncovering Transitions & Turning Points

Life Course Theory employs a number of concepts in the examination of crime and delinquency rates over the life course. In order to identify and operationalize these concepts, it is important to determine those that can be analyzed based on the data available. While LCT traditionally measures rates and trajectories of crime and delinquency over the life course, the current study substitutes these variables for that of negativity and positivity in the content of their online posts. To my knowledge, the theoretical framework has not been used in this context before. Given this, we may or may not find the same general patterns uncovered in traditional LCT studies. I approach this analysis with the assumption that certain transitions and turning points may be associated with changes in the levels of negative discourse online.

Identifying and analyzing the various turning points evident in online user trajectories was conducted through manually reading user posts over the course of their time on each forum. In doing so, it was possible to identify when certain transitions occurred, allowing for a level of efficiency when determining levels of negative speech and behavior in relation to said turning points and transitions. In some instances, transitions and turning points were not overtly evident based on the content posted by the user; however, in these situations, working retrospectively based on statements made in future posts, allowed for a more accurate representation of the turning point in relation to a timeline. The following two turning points/transitions have been determined based on manually searching through user posts during years of interest; and as such, considered relevant for examination.

"Entrance into adulthood" – the transition from being a minor to being an adult can be a fairly arduous process for many, especially those experiencing simultaneous turning points and transitions of a more precarious nature – such as a death in the family, or an unforeseen geographic relocation. As has been shown in prior life course studies, the ability for a minor to transition seamlessly into adulthood is an important factor for a healthy development.

"Entrance into university" – the act of exiting high school and entering into a form of higher education (university, college, or any post-secondary academic training) allows individuals to experience the world outside of high school, where people become increasingly liberated to speak their minds and figure out who they are as an adult. Many individuals on the Islamic forums ShiaChat, Islamic Awakening, and Ummah reveal youth/young adults who have some form of post-secondary education. Some reported simply having completed a single course in college, majored in Islamic studies, or travelled overseas to attend specialized Islamic post-secondary schools in the Middle East.

Chapter 4.

Results

To begin, the sample of minors and adults will be compared. Descriptive statistics were run on the variables, "years on forum", "number of posts", "age at join", and age today", for both minors and adults, as well as the two groups together – see Table 4.1. An independent samples T-test was conducted on both minors and adults in order to determine whether or not statistically significant similarities (or differences) could be found between the two groups – see Table 4.2.

First, the variables "years on forum" and "number of posts" present similar numbers for both minors and adults, suggesting consistency between the two groups. "Years on forum" for both groups presents a maximum figure of 14 years (minors) and 14 years (adults), with minimum years being 2 (minors) and 3 (adults). These similarities imply that potential differences in sentiments between the two groups would not necessarily be explained by these variables. Second, as expected given the research design, age at which they joined the forum ("age at join"), and their age today ("age today") were significantly different.

Table 4.1.   Descriptive Statistics – MINORS & ADULTS

		n	Range	Min.	Max.	St. Dev.	Mean
MINORS	Years on Forum	48	12.0	2.0	14.0	3.2	9.6
	Number of Posts	48	32,371.0	74.0	32,445.0	5070.5	2,940.7
	Age at Join	48	6.0	12.0	18.0	1.8	15.8
	Age Today	48	14.0	15.0	29.0	3.7	23.8
ADULTS							
	Years on Forum	48	11.0	3.0	14.0	3.3	8.9
	Number of Posts	48	23,685.0	95.0	23,780.0	5,739.4	2,956.0
	Age at Join	48	36.0	19.0	55.0	8.6	24.0
	Age Today	48	43.0	22.0	65.0	7.8	30.7
ADULTS & MINORS							
	Years on Forum	96	12.0	2.0	14.0	3.3	9.2
	Number of Posts	96	32,371.0	74.0	32,445.0	5,386.7	2,948.4
	Age at Join	96	43.0	12	55	7.4	20.0
	Age Today	96	50	15	65	7.0	27.2

Table 4.2.   Independent Samples T-Tests Results Comparing MINORS and ADULTS

	t	Sig.
Years on Forum	1.132	.260
Number of Posts	-.014	.989
Age at Join	-6.487	.000*
Age Today	-5.541	.000*

a Welch`s t-test used (equality of variance not assumed)
*p<.01

4.1. SentiStrength (Sentiment Analysis)

Each user was attributed an overall sentiment score based on the average of all sentiment scores, for each post, over their time on the forum. Descriptive statistics were run on these overall sentiment scores for both minors and adults – see Table 4.3. As can be seen, adults appear to be significantly more negative overall, when compared to minors, in their sentiment scores (minors mean = -1.1; adults mean = -1.9). The most negative (overall) averaged sentiment score for the minors was -26.28, and -14.50 for adults. The most positive (overall) average sentiment score for the minors was 2.85, and 4.63 for adults. On average, minors change slightly more in their sentiment (minors range = 29.14; adults range = 19.14) over their time on the forum. As such, minors appear to display more of a range of emotions when compared to adults (a difference that was found to be statistically significant at the .05 level).

Table 4.3.   Descriptive Statistics for Overall Sentiment – MINORS & ADULTS

	n	Range	Min.	Max.	Mean	Std. Dev.
Minors	48	29.14	-26.28	2.85	-1.1237	4.46192
Adults	48	19.14	-14.50	4.63	-1.8902	3.29035

a Independent Samples Mann-Whitney U Test used (null hypothesis rejected).

4.2. Before/After Analysis

For the minors, the before/after analysis was employed as a means by which to test whether there was a statistically significant difference between a minors sentiment score before they turned into an adult (before-19) compared to their sentiment score after they turn into an adult (after-19).

Figure 4.1 was constructed to visually display the overall (averaged) sentiment scores for both before/after and 1st/2nd 50% of the minors as well as the 1st/2nd 50% of the adults. As can be seen, the overall sentiment scores for minors before turning 19 were significantly less negative than scores found after turning 19 – suggesting an increase in negativity after transitioning into adulthood. Similarly, the first 50% of sentiment scores (overall) for adults were significantly less negative than those of the second 50% - suggesting an increase in negativity throughout their time on the forum.
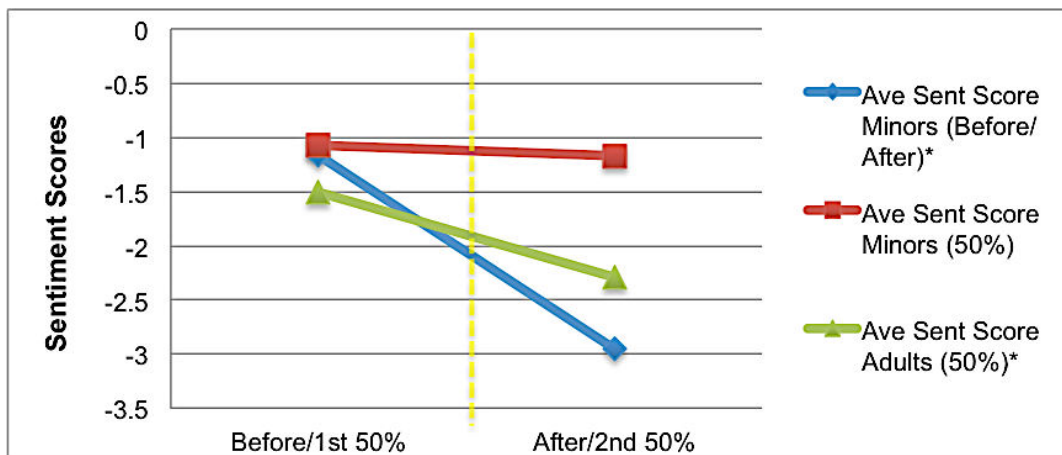
Figure 4.1.   Before/After & 50/50 Trend
*Note.   *p<.05*

Specifically, the sample of 48 minors were examined for differences in average sentiment scores before they turned 19 (pre-adulthood) compared to average sentiment scores after they turned 19 (adulthood). In doing so, only 33 minors had both before and after 19 sentiment scores, as 15 individuals stopped posting before they entered into adulthood. The difference before (-1.16) and after (-2.9) turning 19 was found to be marginally significant (p=.08) (see Table 4.4). A larger sample size may in fact produce results closer to statistical significance. Thus, it is reasonable to suggest that the sample

of minors display more negative emotions in their online posts as they enter into adulthood.

Table 4.4. Descriptive Statistics & Wilcoxon Signed Rank Test Results – MINORS with before/after sentiment scores

						Wilcoxon Signed Rank Test
	n	Minimum	Maximum	Mean	Std. Dev.	Sig.
Before_19	33	-33.06	3.44	-1.1644	6.01020	.081
After_19	33	-55.00	7.00	-2.9457	10.36999	

I also examined the first 50% versus last 50% of posts made by minors to determine whether differences could also be found with adults when using this alternative definition. For the minors group, the first fifty percent of posts were averaged up and compared to the second fifty percent of posts, for all 48 users. As the variables were not normally distributed, a nonparametric test was employed to compare the sentiments expressed in the first and second half of each user's posts (the related samples Wilcoxon signed rank test) – see Table 4.5. The same technique was used for the sample of adults (n=48).

Table 4.5. Descriptive Statistics & Wilcoxon Signed Rank Test Results – MINORS & ADULTS with 50/50 sentiment scores

		n	Minimum	Maximum	Mean	Std. Dev.	Wilcoxon Signed Rank Test Sig.
MINORS							
	First_50%	48	-33.53	3.56	-1.0711	5.35077	.704
	Sec_50%	48	-19.04	3.59	-1.1701	4.04287	
ADULTS							
	First_50%	48	-14.73	4.98	-1.4929	3.34289	.045*
	Sec_50%	48	-14.28	5.04	-2.2875	3.64329	

*p<.05

Based on the results for minors, there was no statistically significant difference between the first 50 percent of sentiment scores (mean=-1.07) and the second 50 percent of sentiment scores (mean=-1.17) at the p<.05 level (p=.704), suggesting consistency in speech patterns, and sentiment over time – see Table 4.5. On average, sentiment scores derived from the first half of the minor sentiment trajectories appear to

be similar to that of the second half – an important finding in light of the significant change measured after entry into adulthood. It reinforces the interpretation that entrance into adulthood may be a significant turning point for this sample of Muslim youth, enough to affect the nature of the sentiments they express online.

Based on the results for adults, there appears to be a statistically significant difference at the p<.05 level between the first 50 percent of sentiment scores (mean=-1.50) and the second 50 percent of sentiment scores (mean=-2.29), suggesting inconsistency in sentiment between the two groups over time (p=.05) – see Table 4.5.

4.3. Analyzing Sentiment Consistency by Individual

Table 4.6 provides a breakdown of the minors and adults found within the consistent and inconsistent trends, with consistent trends being broken down into the following sub-groups: 'consistent / negative', 'consistent / positive', and 'consistent / neutrality'.

Table 4.6.   Sentiment Consistency

	MINORS (*n=48*)		ADULTS (*n=44*)	
	n	%	n	%
CONSISTENT	23	47.9	22	50.0
Positive	9	18.8	2	4.5
Negative	5	10.4	7	15.9
Neutrality	9	18.8	13	29.5
INCONSISTENT	25	52.1	22	50.0
Positive & Negative	20	41.67	20	45.5
Negative	5	10.42	2	4.5
TOTAL	48		44	

Of the 48, 25 minors were considered to possess inconsistent sentiment trends (outside the average group range of 4.95). Similarly, 23 minors were considered to possess consistent trends, with nine displaying positive overall linear trends, five displaying negative overall linear trends, and nine displaying neutral overall trends.

Of the 44, 22 adults were considered to possess inconsistent sentiment trends (outside the average group range of 8.32). Similarly, 22 adults were considered to possess consistent trends, with two displaying positive overall linear trends, seven displaying negative overall linear trends, and thirteen displaying neutral overall trends.

4.4. Qualitative Analysis

4.4.1.   Qualitative Analysis for Minors & Adults

Minors were considered for further qualitative analysis if they met all of the following criteria (see Figure 4.2): remained on the forum during transition into adulthood (n=33); presented either inconsistent trends, or consistently negative trends (n=30); displayed a change in sentiment (negative change) via their trajectory within 1 year before and 1 year after turning 19 (n=21). The final number of minors examined was 21.
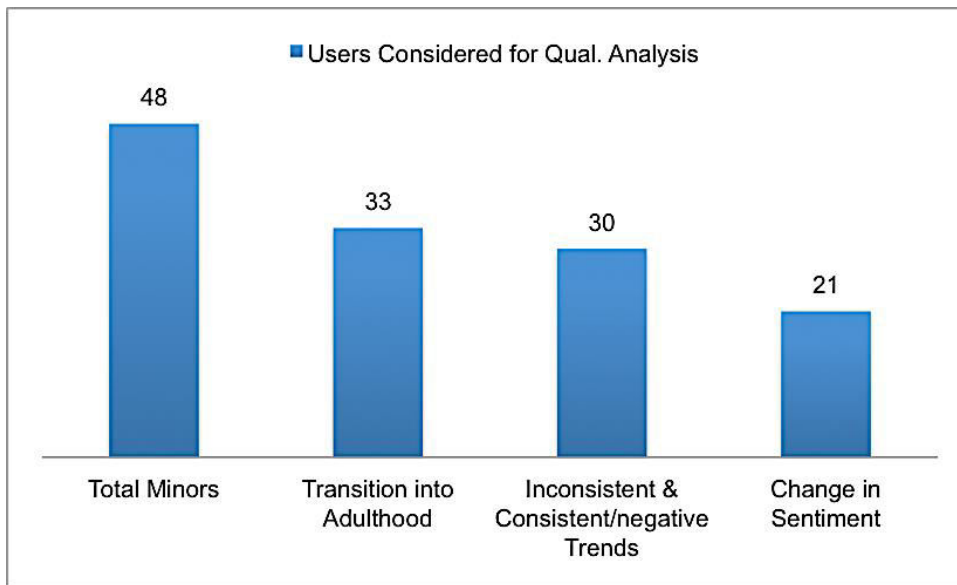
Figure 4.2.   Qualitative Analysis – User Criteria for MINORS

Adults were considered for further qualitative analysis if they met all of the following criteria (refer to figure 4.3): met the required amount of time periods to generate a range (n=44); presented either inconsistent trends, or consistently negative trends (n=29); displayed a change in sentiment (specifically negative change) via their trajectory within 1 year before and 1 year after their half-way mark on the forum (n=22). The final number of adults examined was 22.
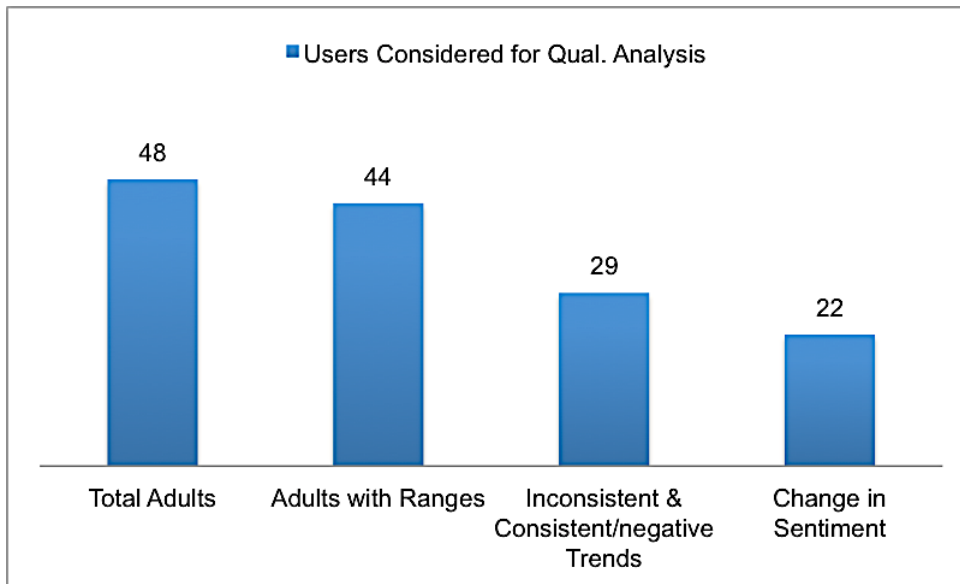
Figure 4.3.   Qualitative Analysis – User Criteria for ADULTS

Based on the quantitative findings of the current study, it was determined that the minors, on average, exhibited a statistically significant change in sentiment scores before and after transitioning into adulthood (at age 19). This finding is important as it suggests the turning points of entering into adulthood, leaving high school, and possibly entering university to impact an individual's sentiment in their respective online forums. Similarly, the quantitative findings for adults revealed a statistically significant change in sentiment scores (on average) before and after the halfway mark of their time on the forum. An important finding, as it suggests the adults to be developing in negativity online (similar to the minors), without possessing the turning point of entrance into adulthood (as they were already adults when they joined their respective forums).

The extent to which individuals are being affected, as well as the nature of their content before/after turning 19 is imperative to better understand, and cannot solely be

done via quantitative methods. While there did not appear to be any obvious consistencies regarding posting behavior (frequency of posts and sentiment of posts) and time spent on the forum surrounding this transition, several main themes were discovered nonetheless. The following section will contextualize and further elaborate on the possible impact of this turning point for minors, as well as the development (or lack-there-of) of sentiment occurring online for the adults. The group of adults presented identical themes to that of the minors – with differing examples and numbers of individuals found in each theme.

The first two themes were determined via the application of directed content analysis, whereby an initial hypothesis of sentiment consistency versus inconsistency was used to guide the coding scheme – seeking out information from the data (Hsieh and Shannon, 2005). The third theme was determined via the application of conventional content analysis – coding categories being determined via the more 'traditional' understanding of qualitative analysis, allowing the data to reveal information (Hsieh and Shannon, 2005).

Theme 1 – Consistency in Narrative (for the most negative/radical individuals)

Minors and adults found in theme one were the most negative, and sometimes violent in their speech, but did not develop into (or out of) this type of online behavior as they transitioned into adulthood. Instead, these individuals tended to remain fairly constant in their speech patterns over time. Even though they were not necessarily "well-received" by others online – as they were too extreme for the majority of users to accept – these users did in fact remain on the forum, discussing with others and networking (forming both negative and positive relationship with others).

While the sentiment trajectory for the following users were originally classified as being inconsistent, it is important to note that the peaks or drops in 6-month data points (giving the trajectory classification of being inconsistent) occurred during significant and sudden decreases in posting behavior. Thus, there would not have been enough posts to average a sentiment score reflective of a consistent trend. Such a finding suggests a disinterest in the forum for these more radical users as time passes – a theme which will

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be explored later on. Furthermore, all of the users were found to be predominantly negative in their sentiment trajectories, and if peaks of positivity (or lessened negativity) were reported, this was due to a significant decrease in posting behavior during that time.

There were only two adult users who fit into this category of consistency in narrative; however, both displayed varying profiles. Furthermore, each of the individuals considered to be fairly stable in their sentiment trajectories over time were the oldest of the sample when they started off on their respective forums.

While not the most negative or radical of the users examined, the following individuals displayed consistently negative sentiment scores throughout their time online (regardless of sentiment trends that might have suggested otherwise) as a result of discussing/debating issues pertaining to religion, political affairs in the Middle East and the West, and the variation of appropriate cultural norms between the Middle East and the West. A large portion of the most negative posts can be attributed to news articles that were copied and pasted into a comment – specifically discussing these three topics (hence the extremely negative sentiment scores). However, of those considered to be of most concern with regards to the negative/radical post content, all could be categorized as the most negative, as initially identified by their sentiment trajectories. Thus, while most of the negative posts were not attributed to personal comments made by the user (and instead the words of others – media), the identification of these users via the graphing of their sentiment trajectories allowed for further examination to take place, in turn, identifying those displaying extreme online tendencies.

To a lesser extent, the following examples display a similar theme regarding continuity of extremely negative sentiment (not necessarily that of their own accord). The following examples are representations of the type of sentiment/content found throughout each user's online trajectory for both minors and adults:

USER M-11

> Before-19: *"I know that Islam doesn"t support terrorism. Al Qaeda are deranged, these are the same kind of people that would behead their daughters if they accidentally showed their face, you can"t expect rational*

thinking from them. If they really want to protect muslim lands, they should fight man to man with foreign troops on their lands, not fly overseas and blow up innocent people who have nothing to do with any of that [Edited Out] and just want to live their lives and make a living."

After-19: *"I think wahabis/salafis are a bigger enemy of Islam because they''re an enemy from within."*

USER M-6

Before-19: *"You are complaining about a rebel cutting off the heart of a dead Assad thug. You should be talking about all the women who were raped by Hezbollah Yeah, all 0 of them."*

After-19: *"I won''t discuss further. May the mercy of Allah be upon the martyrs and His curse be upon the oppressors, and may He accept all our deeds."*

USER A-33

This adult user considered himself to be a "loose Salafi", frequently quoting the works of Anwar al-Awlaki, arguing with others online (most notably another minor sampled in the current study), and appears to be "security-aware". User A-33 is not necessarily extreme in his sentiment, as he was quite eloquent in his writings, but was clearly attempting to sway the minds of individuals online – most likely as a result of his age (45 at start – oldest in the sample). He starts off confident, does not sway in his opinions, and eventually becomes an Ummah moderator. The following quotes are representative of various time points throughout his trajectory online – from start to finish:

"I am a very very loose salafi".

"My source is the Taliban themselves, the Mujahideen themselves, a 11 part Jihad lecture which talk about everything by Anwar Al Awlaki, basic understanding of war, geo-politics, tactics, basic history and knowing how things happened. This is not weak".

"Hereafter Series by Anwar Al Awlaki. I recommend every muslim give it a listen. Life and times of Umar ibn khattab by anwar al awlaki is a great series".

"Why 9/11 took place however is not very hard to understand since Usamah Bin Laden stated clearly why it did and Anwar Al Awlaki said clearly why it happened".

"I respect Anwar Al Awlaki rahimullah because he spoke about it heavily then actually did it" [referring to hijra, or the migration or journey of the Islamic prophet Muhammad and his followers from Mecca to Medina].

Re: security awareness: *"I don"t think anyone should be putting up contact information up on public forum".*

The subsequent examples are of users (one minor and one adult) who displayed extreme, even radical, posting behavior from entrance into the forum – throughout the transition into adulthood, and past the halfway mark – until exiting the forum.

USER M-44

Even though User M-44 began on the forum at age 18, the majority of his posts could be found during this before-19 phase. It seems as if this particular user differed from all the rest in the sense that he immediately began posting (and engaging in) discussion topics of a more negative, even radical, nature from the moment he joined the forum. Additionally, these topics were made even more extreme by User M-44 – who acted as an "instigator" of sorts, posting extremely negative, even violent, statements. User M-44 appeared to be incredibly fanatical from day one on the forum – character traits which do not develop over time. He remained extremely negative until his last post on the forum (in 2011, 8 years). He also exhibited the traits of superiority and unwavering confidence in his person, religion, beliefs, and culture:

"I cant wait for imam to come and behead them and i will be Imam"s personal cook. I mean when imam will inshallah behead them so inshallah i will grill there heads and feed to the dogs and pigs...hahahaha.. This is me.."

"We Shias are superior muslims…and we are knowledgeable and mature.. In Shiaism we think that religion comes first and then world. Well you Christians & Jews aren"t even true with ur religion. drinking alcohol and eating pigs makes u mean and u cant think out of ur world.. so unfortunately u aren"t close to ur religion....... We are waiting for the mesiah whose name is Mehdi and he will come and inshallah destroy

Satan America & Satan Israel.. Inshallah he will behead u MARINE BASTA*DS one day."

"Infidel… Thats your biggest mistake; calling me child.. You see, you western govt. think that you are the supreme power… Underestimating everyone..."

Regardless of how his opinions and beliefs were received from others, his way of speaking/behaving online was never altered or affected. If anything, external pressure from others online, demanding he be less radical, only sought to upset him and foster further arguments.

"Dont ever call me Radical Again.. Okkk.. Get it.. Or next time a poem will be on u that how ignorant are you …Well ignorant people like you are Islam Destructors... Ok and take a chill pill and dont talk about me next time. Ignorant...."

Response to someone who called him a joke: "Coward is u....Hiding in USA.. Taking protection from the enemy of Islam..Lol..u call me coward and my buddies(Mujahido) coward.. Well we are born with vengeance..Get it.. We are Hussaini and we aint afraid of no one.."

As was aforementioned, these types of users were not well received by others, especially User M-44. As such, responses from others on the forum were of concern and sometimes fear:

"You are very dangerous." – speaking of User M-44

"[User M-44] u r an extremely messed up person. I hope u r seeing a shrink."

Many of these responses could be attributed to the extremely negative, and often violent personal poems and chants that User M-44 wrote and posted on the forum. These poems and chants consisted of topics pertaining to martyrdom, killing, vengeance, hatred, sin, terrorism, and the "Great Satans": America and Israel. These poems/chants were not well received by others on the forum, as they felt they were quite disturbing in both content and nature.

In response to many of these postings, administrators and moderators on the forum had to interject by deleting, and editing certain comments/phrases, as the content was too extreme for the forum.

"[Note from Admin: Please discuss with more respect and maturity, warning given]"

"[Mods note: WARNING and SUSPENSION for slandering Ayesha]"

From the beginning of his time online, User M-44 stated his fervent and unwavering beliefs in Islam and what he considered to be "acceptable" religious/cultural behaviors that one should partake in if they consider themselves a "follower". These activities/behaviors consist of, but are not limited to: refraining from listening to music; practicing Zanjeer – hitting oneself on the back with a chain of blades (Zanjeerain); living in an Islamic state; getting married before age 18; being a pious wife (for women); and acquiring military training (if you are a Shia Muslim).

"Music has many effect on a person"s phycology and personality.. Music makes a person animal as it make him forget his values and start"s to commit more sins than ever. PEOPLE WHO ARE CRAZY HEAR MUSIC AND PEOPLE WHO LISTEN TO MUSIC ARE SICK...."

Purchased a Zanjeerain: *"I had also ordered the Zanjeerain which were made on speacial order and…they came through regular mail from pakistan and it didnt get caught in customs. I live in Canada and it is very difficut to do zanjeer matam here."*

Believes in an Islamic State (this is before ISIS), and hates Canada: *"Salam, if anyone commit these heineous crimes so he should be handed to death or beheading squadAnywayz the solution to this is to impose Islamic Govt(not puppet one). Get children married when they are 18."*

"I think every shia must have a Military Training..They must know how to use the gun..I know how to use Ak47 and 9 MM."

"Man I have taken shots from revolver, Ak-47, 9MM and inshallah i am planning to experience grenade throwing, bottle bomb throwing, rpg firing soon when i go to pakistan next year."

In addition to stating these behaviors as a responsibility of all Muslims following Allah, User M-44 writes his own articles supporting physical action, posting them to the

forum, in an attempt to motivate others to become inspired towards the Jihad. Some of these article received fairly positive responses of encouragement and support.

> *"The reason our Imam is disappointed from us is because we are just replying to his call of help emotionally but not physically. Our Imam wants us (ShianeAli) to reply to his call emotionally and physically."*

> *"Thanks, but I want to remind the conclusion of this article is we should participate in protests which are against the US, Israel, Britain and there Allies. This is the only way i see that we can answer Imam Hussain call emotinally and practically."*

User M-44 displayed a fervent and unwavering desire to become a martyr, and for others to learn how they too can engage in martyrdom. Throughout the users' time on the forum, this theme of a passion for martyrdom was the most constant. As can be seen in the proceeding sub-section for User M-44, there is a long line of martyrs in his family (back in Pakistan) – hence his desire to be a martyr.

> *"Salam, My one wish that i wish come true is that i get shahadat or martydom.. I wanna get extreme martydom which is that my body gets into so many pieces that no one could recognize me..... I know people will now call me extremist... If u really wanna know how u can get shahadat so plz read the biography of Allama Shaheed Arif Hussain Al Hussaini and Shaheed Dr. Mohd Ali Rahimi......... Newayz i am not afraid of death as i am also the member of the gusul-e-mayyut commitee........ I think every buddy should learn how to give ghusul as it will get ur death fear out of u..."*

> *"Death is sweater than honey… Love Pakistan & Willing to die for Pakistan..."*

That being said, User M-44 self-reported taking part in a known extremist organization back in Pakistan, and being placed on the "No Fly List" by the Canadian Security Intelligence Service (CSIS) – a statement that cannot be corroborated for the purpose of this study.

> *"Well, i am on NO FLY LIST..I have complained and inshallah next week sometime, my story is gonna publish in Canadian Newspaper along with pic...I am on No Fly List becaz of my name...Well, they still let me travel after a serious background check...No Criminal Rec..."*

The second adult individual found within theme one presented himself in a manner that alerted authorities in the United States to his online activities. User A-44 was incredibly negative, even violent in his sentiment from the very beginning until he was arrested by the Federal Bureau of Investigation (FBI) on terrorism charges in 2014. This individual attempted to motivate others towards radical ways of perceiving Islam, and has been referred to in an article by Dina Temple-Raston (of NPR News) as helping to "change the way young Muslims were radicalized by spewing radical Islamist propaganda on a YouTube channel" (para. 1). User A-44 was an avid Awlaki poster, and felt that all Jews needed to be eradicated.

> *"Dear brothers and sisters, it is as clear as day and night that the Jews are the enemy of mankind and even the environment. I have read this thread, and the Jew has been provided with more than ample proofs and evidences, but why waste time? It is crystal clear that the Jews (may Allah swt destroy them) run the media, banking, USA foreign policy, and the porn industry etc. Brothers and sisters rather than being kept busy refuting this bacteria we should focus on ridding Judaism from this earth".*

> *"…We are therefore delighted that we are constantly attacked in the Jewish gazettes. They may shout about terror. We answer with Mussolini's familiar words: "Terror? Never! It is social hygiene. We take these individuals out of circulation just as a doctor does to a bacterium. Brothers and sisters, I am not a Neo Nazi in fact I am a former Jew, but I urge you to rush forth in Allah's service in any and all ways legal :wink: to eliminate the teachings of Judaism aka The Jewish People".*

In addition, User A-44 openly expressed his support for organizations considered to be terrorist groups by the Canadian government (CC section 83.05), even providing advice to others online on how to travel overseas and partake in activities alongside these groups:

> *"May Allah bless Hamas and grant them victory. BTW with a UK or USA passport you can enter there, go and make a difference, show them how to do it".*

> *"The Taliban did the right thing when they fought Jihad may Allah reward them. The question that one may ask and I don't necessary say this is the case is: Did the Salafi Jihadi' attacks on the USA on 9/11 bring*

*down that almost Utopian Islamic state that the Taliban fought so hard
for?"*

User A-44 openly makes reference to the importance of online forums –
particularly the one he partakes in – for known extremists and terrorists:

*"…If you think this forum is all talkers, you are mistaken and i am sure
many prisoners in bellmarsh and gitmo where at one point here or clear
guidance, or muslim creed or reviving or taliban online".*

*"btw haganah online has the best list of men of action thats where many
get the good sites from. i am angry at haganah because they labeled my
site hamas, and then latter salafi jihadi and i am neither".*

Interestingly enough, User A-44 did not appear to worry about external
surveillance on his laptop, and overall activities online, as he did not believe himself to
be "Salafi Jihadi":

*"We are not Salafi Jihadi thus we really have nothing to hide. We assume
that all our posts and laptops and internet access is being watched so
unless they put Anthrax in our laptop I don't think that is a issue.
RevolutionMuslim.com is not calling for soldiers to fight overseas nor are
we a charity, so their is no reason for us to "lay low". As per people
attacking us, well call me sadistic but I actually enjoy hurting attackers".*

User A-44 continually attempted to recruit and "inspire" others online through his
comments made through both his respective forum, and extremist website (that was co-
founded with several other individuals):

*"We call you to Islam and to leave the lie that is Wall Street. Come to
REAL ISLAM in its totality and make the world a better place.   ISLAM IS
THE ONLY SOLUTION!!!"*

While User A-44 was not a Canadian citizen, he spent considerable time in
Canada (visiting and living) and as such, was included in the initial sample for his tie to
Canada – albeit a weak one. It should be noted that User A-44 was arrested as a result
of his activities on YouTube as well as a personal Muslim extremist website he co-
founded with several other individuals (all of whom were arrested as well). According to
the U.S. Attorney's office, this website had known ties to Anwar-al-Awlaki, and openly

supported Osama Bin Laden, the Taliban, Al Qaeda, and other violent groups (U.S. Attorney's Office, 2014).

Theme 2 – Development in Narrative (with pseudo-extreme and least negative individuals)

Some of the minors and adults considered to be fairly negative in their speech did in fact develop into more extreme forms of posting as they transitioned into adulthood (minors) or passed the halfway mark (adults). Overall, there was a general finding of increased frustration and annoyance at other users during the latter periods of their time online. Such a finding is consistent with the earlier quantitative findings, which revealed there to be a statistically significant difference between the first 50% of posts and second 50% of posts (for adults), and marginal significance for the sample of minors displaying more negative emotions in their online posts as they enter into adulthood.

It seems as if the continued debating, arguing, and general atmosphere fostered on these forums tended to encourage statements of increased irritation, which is understandable as the myriad of characters assembled on these forums would only encourage arguments and banter amongst users. Such a finding is not surprising, as many online forums (not necessarily Islamic in nature) will have this effect on those partaking in discussions, but does act as a limitation for the current study (one that will be discussed in the limitations section of the report).

The developments observed for the least negative users could be explained by individuals developing general life interests, but not necessarily towards more negative (or even extreme) opinions/beliefs. In other words, their opinions did not change, but the topics they chose to engage in did – hence the increasing negative sentiment scores. Both the minors and adults were becoming more entrenched in conversations of a more volatile nature, in turn, increasing the amount of negative words/phrases being used – hence the statistically significant increase in negativity over time for both groups (with minors being marginally significant).

The following examples exemplify the development, which occurs over time (specifically during the transition into adulthood, and the immediate entrance into the latter half of posting), for the pseudo-extreme individuals:

USER M-13

> States his own development since high-school: *"Allah swt has his ways to change someone"s life. I use to be just addicted to "bodybuilding", "music", "socializing" in high school. Even if you achieve everything you want, it has 0 gain in happiness, you always find yourself alone with this giant hole in your heart. Mashallah through the tests and trials, I came out of that phase and now I want to unite the muslim ummah in my area and help them out of the kaffir"s routine they drill in our head. I feel so sick when I miss a prayer now, I can"t fall asleep if I missed a prayer that day. It seems now that I am closer to Allah than ever. I pray that Allah does not take away the Deen from us Ameen."*

> *"You"re making me really angry with your lack of understanding regard this Predestination..."*

> Many very long and heated conversations over the Taliban, hence the decreasing sentiment post-19: *"YOU DONT KNOW because you aren"t in the Taliban, they can be just as bad as the Americans for all I know, everything I claim i will have to answer for on the day of Judgement, so stop claiming things you don"t know about. Unless your in Taliban, and know how they treat the soldiers than come speak to me."*

	2011 (1)	2011 (2)	2012 (1)	2012 (2)	2013 (1)	2013 (2)	2014 (1)	2014 (2)
Ave. Sent.	-0.50	-0.59	-0.87	-1.92	-0.32	0.69	-0.31	0.19

Entrance into Adulthood: ━ ━ ━ ━ ━ Time Period of Analysis with Sampled Posts: ⬤
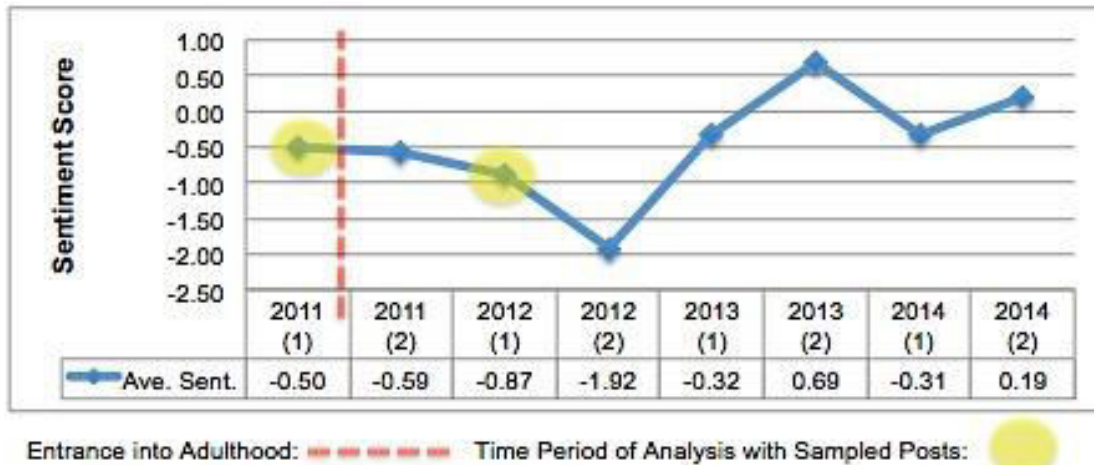
Figure 4.4.   USER M-13 – Example of drop into negativity (after 19)

"You know my life I realize is very boring. SchoolStoreShiaChatSleep. That"s all I do. I never hear of what"s going on outside of family. Lol, life will change a lot when I get into Uni..."

User M-19 seemed to be posting many more discussion points and articles on conspiracy theories, Iran, terrorism and suicide bombers immediately preceding his transition into adulthood. Such a change in sentiment can be visually depicted in Figure 4.5, during the time period of analysis 2005(1).

"All this anti-Iran propaganda they"re publishing everywhere is an attempt to turn the public against Iran so that if America tried to take some sort of action against Iran (because of nukes, the strength of the Islamic Govt. or whatever) then there would hopefully be less critical public opinion. They realised they just didn"t spout enough anti-Saddam propaganda before invading Iraq."

"There are more useful ways to do Jihad than in a testosteronefuelledmachomanegotistical attempt to satisfy one"s own arrogance by going to Iran and playing with your toy guns. If I was to take part in "physical jihad" however, it would be in defense of Iraq (or Ireland), no other countries. Jihad is for Islam not for a country."

	2003 (2)	2004 (1)	2004 (2)	2005 (1)	2005 (2)	2006 (1)	2006 (2)	2007 (1)	2007 (2)	2008 (2)
Ave. Sent.	-3.75	-2.84	-2.65	-3.07	-4.79	-4.31	-6.00	-2.77	-4.71	-2.00

Entrance into Adulthood: ― ― ― ― ― Time Period of Analysis with Sampled Posts:

Figure 4.5.   USER M-19 – Example of drop into negativity (after 19)

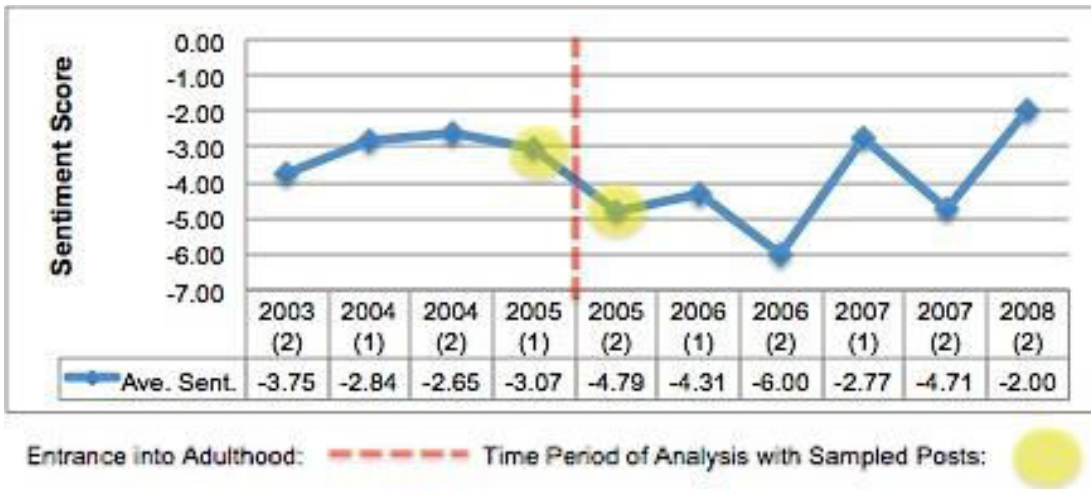Furthermore, User M-19 begins reading and studying more on Islamic history, specifically martyrdom. This change in topic (and therefore sentiment) can be seen in Figure 4.5, during the time period of analysis 2005(2).

> *"I think the day of this great scholar"s martyrdom should be a message for all of us. It has now become clear that the government can not protect us. And that our silence and patience gives more courage to the SSP. They have through their manipulation of the Sunni sect, spread false claims and accusations against the Shiah Muslims. I believe this is the time when we must stand up for our rights, and fight back, on all fronts. All the likes of Azam Tariq should meet the same fate as Azam Tariq, to serve as a reminder that messing with the Shia community has a price. We"ve suffered way too many casualties in a war whose only aim is to get rid of us. And our enemy has never tried to hide its intention. I am sure there isn"t a single one of Pakistani Shias who has not seen a close personality be martyred."*

> *"Innalilahi Wa Innailaihi Rajioon. Allah has chosen him to be a martyr on the hands of His Prophet"s killers who know that we have a long battle with them and the blood of martyrs especially our leaders has always taken our resistance to a higher and stronger level."*

<u>USER M-46</u>

In the initial stages of posting on his respective forum (before-19), User M-46 engaged in warning the "newbies" of the vile and extreme nature of the forum, stating it is not a good representation of Islam. In the aftermath of turning 19, User M-46 begins posting vile and extreme comments, condemning "disbelievers", and posting on the importance of jihad. This user's very last post on the forum was a lengthy monologue whereby he made known his disgust and frustration towards the forum and certain users in it.

> *"Indeed, they who disbelieved among the People of the Scripture and the polytheists will be in the fire of Hell, abiding eternally therein. Those are the worst of creatures."*

> *"It seems to me they are like pacifists. Which is unfortunate. Someone should gently remind them of how huge jihad is in this deen. It's their biggest lacking element. They are...very soft.   Unlike Madkhalis.*

"Ok, be gone. You are the one who disbelieves the ayat of Allah. Indeed, those who disbelieve in Our verses - We will drive them into a Fire. Every time their skins are roasted through We will replace them with other skins so they may taste the punishment. Indeed, Allah is ever Exalted in Might and Wise."

"Honestly, it seems I get drawn unwillingly into arguments or tense conversations where people behave a bit aggressively or harsh. Why you lot so grouchy? Lighten up!   I'ma go back to my hiding hole now. This world is too dark and cruel. I give you my salams of goodbye, you can go ahead and give me your good riddances and get lost salams and we can all go back to doing something more useful."

"I am frankly sick of this and I certainly do not fear your blame."

With regards to the select few adult users who developed more precarious interests online, these individuals tended to increase their interest in Islamic scholars such as Anwar-al-Awlaki – expressing their newfound interest in his literature and lectures – or simply increasing in paranoia.

USER A-9

This particular user developed from simply asking questions and seeking knowledge on topics of politics and current affairs in the Middle East, to partaking in discussions and debates on the topics. As a result, his sentiment trajectory decreased into negativity, but as can be seen, his personal opinions and beliefs remained intact (against violence and terrorist activities):

"Hi Members / Chabab: Can anyone tell me more about Syrian SheikhinExile Adnan Aroor?   He is exiled in Saudi Arabia, some describe him as the "spiritual" mentor behind the revolution.   He vowed to put Alawites and Christians into the "meat grinder" and feed their dead bodies to dogs.   How popular is he? What is your opinion on him?   AlArabiya describes him as "moderate Islamist" and a "freedom fighter." Any information would be much appreciated.   Best regards to all".

"The ones who planted so many bombs in Lebanon are meeting the same fate! Well it doesn't make me happy to see a suicide bomber, or a bad regime replaced by another evil one, what goes around comes around. Bashar has nowhere to escape. He chose this fate for himself".

"wahabis simply stand for anything and everything that is inhumane, After seeing their actions, i really do have a new found form of hatred for them They are evil creatures and they hate us too".

USER A-29

While User A-29 began his time online discussing political, cultural, and other "touchy" subjects (such as the holocaust), he then developed from expressing himself in a neutral manner to expressing himself with more negative statements – directed towards Middle Eastern rulers who were in power and "wreaking havoc on their people" (as expressed by User A-29):

"Salaam, theirs peace in the north and the south isn"t really that stable plus the shabab have killed innocent people, I"m all for shariah law but you can"t kill innocent people to get what you want".

"May Allah destroy bashar al-kalb and raise him with his father hafez on qiyamah. Ameen. May Allah raise him with firawn. Ameen, and may Allah destroy the raafidah. Ameen ya Rab!"

"So as you can see, the rulers of today are garbage that must be removed. (Their are a few good ones though)".

"I make dua every night for Allah to destroy him. He"s a shaitan, who kills my fellow Brothers and Sisters".

User A-29 then goes on to express his newfound interest in learning from Anwar al-Awlaki:

"Instead I listen to lectures (Anwar Al-Awlaki, Ali Timimi etc) so try and incorporate that. May Allah make it easy for you. Ameen".

Alternatively, the remainder of users found in theme two displayed signs of development as a result of engaging in life experiences (which were reflective online), but were not considered "extreme" in nature – a finding which should be expected for most all of the online community. These individuals exhibited a slight development of frustration and annoyance directed towards other individuals on the forum as time went on.

User M-22 becomes involved in more heavy and long/intense religious debates (and general debates) after transitioning into adulthood, as opposed to simply posting articles – as he did before adulthood (examples of these articles will not be provided for the sake of space). User M-22 begins stating comments in reference to his new interest in learning about martyrdom – however, not in an "extreme" or worrisome manner. In addition, new opinions and interests appear to be forming with regards to political / cultural issues in the West versus Pakistan, interests which attract the attention of forum moderatos who consequently delete his post for being too offensive:

> *"I just watched that 3 minute Martyrdom video. Pretty interesting. I hope someone records it and YouTubes the whole show."*

> *"[Note from Mod: You have been warned for asking an offensive question] [edited]"*

> *"[Note from Mod: If you have an issue to discuss regarding your warning, please PM me. You have been warned for this as well as your unmannered way of replying remember that this is an Islamic forum. Please refer to refer to rules number 4 & 5.]"*

Based on comments made by User M-22 (as well as other users on the forum), it would appear as if User M-22 has the ability to close ("lock") threads once he turns nineteen:

> *"Let me summon my ShiaChat powers and lock this thread."*

> *"Despite the presence of an admin here I don"t live on this thread you know."*

User M-22 states he has not been going on the forum as much lately. When he does, he writes long messages (fairly well reasoned and informed). Some posts display hints of frustration and annoyance when he is forced into writing a long response.

> *"First of all [user name edited out] I suggest you quit with your lame remarks and your holier than thou attitude. You are a no one. I don't know why you seem to have an interest in my personal life and what I do (wasn't it you who randomly brought up some story about me going to*

school on Ashura on some next thread :lol:) and what sites I visit or don't visit. Do you have some sort of a Website-tracker installed on your computer that tells you what websites I visit for nohas?"

Increasingly becoming frustrated and angry with people taking things out of context: *"I am a bit taken back and a bit disgusted by your post and don't see any other comment that was worth replying to as you have stooped to the same level like those that have done so in the past on this very forum."*

<u>USER M-25</u>

Before transitioning into adulthood, User M-25 exhibits hardly any Islamic and or political talk on the forum. After-19, however, User M-25 seems to be more entrenched in political and Islamic issues, asking more questions, and discussing how there is plenty of corruption in many places over the Middle East, but that Iran is the sole focus because that is where the media chooses to look. User M-25 begins taking a keen interest in uniting the Muslim sects – a stark change from the earlier posts lacking in motivation and involvement.

> *"looooooool, I actually saw this on Ripley"s Believe it or Not, these dogs are police dogs, and this is how they show that the trainers have control over the dogs, and the dogs have inner control. Salamz".*

> *"I once had a turtle, kept it for two years, it was cute at first, but then it just got ugly and annoying. I once had a cat, for one day, then my dad didnt like it so he just threw it out, lol."*

> *"I say we start by trying to unite the Shias with the Shias, and then try and unite the rest. As for the sunni gov"t refusing the views of Shia, this view can be agreed upon in many countries, but in many others it is tolerated (kuwait, bahrain and the likes)."*

<u>USER M-39</u>

User M-39 appears to quickly develop frustration with individuals who say things she finds to be incorrect. This trend seemingly appeared within her second year of being on the forum (the year immediately preceding her transition into adulthood), with quotes – such as the one below – not appearing before her transition into adulthood:

"What ur talking about, didnt u read the hadith by holy prophet tht "whoever hurts fatima, hurts me, whoever hurt me, make Allah angry" GO READ THT IN UR OWN BOOKS, PEOPLE CAN GO SO BLIND I DIDNT KNOW THT, CURSE ON THE ENEMIES OF Allah ps.: sorry mods his comment made me angry."

<u>USER A-29</u>

In a similar fashion to that of user M-39, user A-29 increasingly develops into frustration over his time online – as represented by the following comments made in the latter half of his online trajectory:

"In all sincerity akhie YOU should shut up as you have admitted you dont know what you are talking about   I suggest you ask whatever sheikh you follow to give you evidence on how much sin there is on what you do .."

One of the last post made by User A-29: *"I"m done trying to justify and defending some of you who bring this website into disrepute, so by avoiding it i"ve removed it completely for the time being until further notice to save the headache, really we don"t need to be dealing with such issues now All of those threads should be removed."*

As a result of being immersed in an online community whereby more intense and even "extreme" political and cultural topics are being discussed, such a development into negativity (based on sentiment scores) seems fairly reasonable. Throughout time spent on the forum, it would be expected that individuals would eventually begin discussing topics of a more negative (possibly extreme) nature, as this would constitute a natural progression throughout the forum based on developing interests and exploration into the various sub-forums and threads available to a user.

Theme 3 – Using forums as a stress outlet & means of support

While there did appear to be a statistically significant difference between a minors sentiment before-19 versus after-19, qualitative analysis revealed this finding to be predominantly a result of entrance into university (around age 18 or 19), as individuals became more in need of an "outlet" for their stress related to university schoolwork and overall adult life outside of high school. Whether or not the posting frequency increased or decreased during this time, common findings amongst these individuals relate to seeking help and support with schoolwork and overall life via their

respective forums. These individuals, however, were not the most negative of those examined (n=21). It seems as if the turning point of "entrance into adulthood" goes hand-in-hand with that of "entrance into university" with regards to sentiment development. Distinguishing between the two turning points may not be necessary or even required, as those who entered did not enter into university (versus those who did) displayed similar levels of frustration and posting behaviors as a result of either moving out, or having to find a full-time job.

The following examples provide a greater understanding of minors stating their stress regarding schoolwork and jobs. In these examples, there are moments whereby individuals seek support through their online community as they cope with life events.

<u>USER M-22</u>

Not only does User M-22 ask school-related questions (when he requires assistance with his homework), but he also seems to be using his forum as an outlet for stress:

> *"This semester I go to university 2 days a week. At first I thought 2 days a week and rest of the days I"ll study and what not. But I realized it's so hard to study at home, on the 2 days that I do go to university I do get some serious studying done followed by the whole gang of friends going to Popeys at around 9:20 PM or so (we ditch class). Now I"m struggling to keep up with my lectures and slides, I need to get back on track. And it"s not like I can work either on the rest of the days, that"s why it sucks even more; there is so much course load this semester it"s not even funny!"*

<u>USER M-39</u>

Finds support for the death of her cousin via her respective forum:
"salam, thanks guyz for all ur moral support i really appreciated it, may Allah fulfill all ur dream, wishes and duas. P.S u helped me a lot by prayer for my cuz and giving me a moral support, thank u so much.   u guyz will always be in my duas, inshallah   khz tc remember me in duas."

<u>USER M-44</u>

Seeks support and motivation: *"Thanks guys. You guys have really motivated me."*

"At last, college is a battle ground for you. I get tested and teased everyday by my nafs and i like defeating with my nafs."

Even though the sample of adult users exhibited slightly different types of stress – with some of the younger adults showing signs of similar types of stress to that of the minors – many used their respective forum in order to support, encourage, or relieve every-day forms of pressure, anxiety, and tension. Such a finding suggests that regardless of age (and turning points associated with said age bracket), individuals will find themselves in need of moral support in order to deal with life situations that are causing them stress. These online Islamic forums appear to be great outlets for people of all ages – minors and adults.

USER A-4

User A-4 openly expressed his appreciation toward the forum for providing him with a community of support to better understand Islam and cultural Muslim practices:

"I feel that there is a very strong sense of a close and united community here and inshallah I will gain much knowledge from the topics being discussed by all of you. I would also like to thank all of you for taking your time and spreading your knowledge on shia islam in this forum, because if it was not for all the topics you discussed here, then I probably would have known very little about Shia islam".

In response to an unfortunate encounter User A-4 had with several men outside a bus stop, he found support online with his respective forum:

"I mean, I do now feel inspired to work out, and maybe in a few months, if I improve physically, I will look at this day as a positive, but until then . . . I am so depressed and embarrassed. I mean, I know there are worse things going on in the world, cancer and aids, but my manhood felt so cheap today".

USER A-24

Some users even expressed their desire for their respective forums to act as an outlet for their personal dilemmas and addictions:

"A seeker of knowledge here, been lurking around the forums for a little while. This is all an attempt to get away from an addiction - im trying to busy myself with this forum and get away from computer games".

4.4.2. Quantitative & Qualitative Comparison of Top 5 Most Negative Users

The current (and final) qualitative sub-section compares the top five most negative individuals (as per their sentiment scores and trajectories) with the qualitative findings to determine whether or not those most negative quantitatively are also those most negative qualitatively. These individuals were drawn from both the minors group and the adults group. In order to identify these users, SentiStrength scores were averaged up per user to determine overall sentiment scores. Those users with the five most negative overall sentiment scores were selected for comparison with the top five users qualitatively determined to be most negative/violent.

Table 4.7 displays the top five most negative individuals as per the SentiStrength results (or quantitative trajectory findings), as well as the top five most negative individuals as per the qualitative analysis findings.

Table 4.7.   Top 5 Most Negative Users – SentiStrength vs. Qualitative Analysis

	User ID	Ave. Sentiment Score	Minor / Adult
SENTISTRENGTH			
	User M-8	-26.3	Minor
	User A-9	-14.5	Adult
	User M-26	-9.1	Minor
	User M-29	-8.9	Minor
	User A-4	-8.3	Adult
QUALITATIVE			
	User M-44	-2.3	Minor
	User A-44	-0.7	Adult
	User M-11	-3.2	Minor
	User M-6	-1.3	Minor
	User A-33	-0.8	Adult

All five users found to be most negative qualitatively were determined by the themes in which they were classified. All individuals found in theme one (n=5) presented

as either extreme or pseudo-extreme, and as such, were classified as the top five most negative users qualitatively.

As can be seen from Table 4.7, the top five most negative users as determined by SentiStrength did not appear to be the top five most negative users as determined through qualitative analysis. The sole case that may have constituted an exception would be that of user A-9, who was determined to be quantitatively one of the top five most negative individuals. However, he was not considered to be one of the top five most negative individuals qualitatively (he would, however, constitute a top 10 member).

The findings of this analysis support the overarching argument (of the current study) that qualitative analysis is required in order to better understand and contextualize the quantitative findings of SentiStrength. These two types of analyses would appear to supplement each other, providing further support for the notion of a mixed-method approach when examining online trends of sentiment over time.

Chapter 5.

Discussion

The current study set out to examine the development of negativity in the online context, with specific focus on minors engaging in online Islamic forums. In doing so, both LCT and GST were drawn from so as to establish a theoretical framework from which to determine if certain turning points in life (specifically entrance into adulthood and university) affected an individual's online sentiment trajectory. Quantitative results suggested the transition into adulthood (for minors) to be important, as this point in time was reflected by a statistically significant increase in negativity (compared to their pre-19 sentiment scores). When examining the first half (50%) of the minor sentiment trajectories, on average, these scores appeared to be similar to that of the second half – an important finding in light of the significant change measured after entry into adulthood. Such a finding reinforces the interpretation that entrance into adulthood may be a significant turning point for this sample of Muslim youth, enough to affect the nature of the sentiments they express online.

Sampson and Laub (1990) stipulate that social bonds developed in adulthood seem to have a fairly significant effect on modifying (or reducing) criminal and deviant behaviour developed during adolescence. While youth have a tendency to age out of certain life behaviors and mentalities (as they mature), the same cannot necessarily be said for that of negativity (or negative affect). The current study determined negativity online to increase after transitioning into adulthood. Thus, while criminal activity seems to follow an age-crime curve (Moffitt, 1993; Loeber, Menting, Lynam, Moffitt, Stouthamer-Loeber, Stallings, Farrington, & Pardini, 2012), current findings do not seem to support the notion that youth will develop out of (or reduce) the amount of negative affect they experience and express online. Additionally, analysis of the adults group further supports the idea that negative affect does not necessarily diminish over time.

The first half (50%) of sentiment scores (overall) for adults were significantly less negative than those of the second half - suggesting an increase in negativity throughout their time on the forum. It would seem as if the turning point "entrance into adulthood" does not need to be present in order for a significant change in sentiment to occur in the adults group. Such a finding lends support to previous literature on affective development whereby negative affect increased with age (Ferring and Filipp, 1995). However, these studies were conducted in the offline setting, whereas the current study analyzed sentiment in the online setting – a factor that would require further research and analysis in order to better understand the impact of such a contextual change, if any.

While most users displayed a change in sentiment (quantitatively) and overall posting content (qualitatively) before and after transitioning into an adult (age 19), for a select few, there did not appear to be any evidence of development during this time, or even at all (throughout their entire online trajectory). These users (with little-to-no development) were the most negative and extreme on the forum. Through qualitatively analyzing these individuals, three overarching themes were discovered for both the minors and adults group.

The first theme was *'consistency in narrative (for the most negative/radical individuals)'*. Those who were the most negative, extreme, and even radical (User M-44 and User A-44) in their speech did not develop into (or out of) this type of online behavior as they transitioned into adulthood. Instead, these individuals tended to remain fairly constant in their speech patterns over time, and the various transitions/turning points of adulthood, entrance into university, and even sickness/death of a loved one did not alter the users' sentiment to the extent of obvious change. These types of users could be found as acting overtly negative throughout their time on the forum – from their entrance to exiting the forum. Four of the twenty-one minors, and two of the twenty-two adults could be found within theme one.

Initially, it was not well understood the extent to which the more extreme individuals would be acting as "inspirers", "motivators", or "indoctrinators" towards others online. Thus, it became a goal of the qualitative analysis to not only determine

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development over time, but also to better understand the effect certain (more violent) individuals had on others online – particularly youth. Based on the findings of the current study, those who were most negative (even extreme) in their sentiment were not well received by others online regardless of age, yet they remained on the forum – discussing, arguing, and even networking with others. Essentially, these users did not appear to "sway" others with their thoughts and manner of dialogue. In fact, the more infuriated they became – as a result of others not understanding their opinions and beliefs – the less they were able to get their point across, as others were either ignoring them or refuting their arguments (as was evident with User M-44, and responses he was receiving from other users online to his extreme viewpoints). Furthermore, the majority of minors examined appeared to be quite resistant to, and able to identify, other users of an extreme negative and even radical nature (users M-44 and A-44, for example).

It would seem as if the select few (in both the minor and adult groups) who displayed extremely negative online sentiment trajectories were not obviously affected by any significant developments (or turning points) in their lives – as determined through qualitative analysis. These users began negatively, and continued on with this manner of speech throughout their time online. It is possible, however, that these individuals experienced life-altering turning points and transitions offline (before entering into their forums), and chose to engage in online interactions via their respective forums as a result.

As such, the possibility of these more radical individuals experiencing extreme trauma earlier on in their lives should be considered. As was evident throughout the online trajectory of user M-44, there were quite a few significant moments in his life (before entering into the forum) whereby he proclaimed viewing the violent death of several family members (through acts of martyrdom) back in Pakistan. Such an environment of violence and extreme emotional distress may have stunted certain aspects of this individual's development – hence the lack of development present online throughout his entire trajectory. Ginwright and James (2002) refer to these more precarious and detrimental life conditions as "social toxins" (p.28) – otherwise understood as representing "the degree to which the social world has become poisonous to a person's well-being" (p.29), with specific reference to extreme forms of violence,

brutality, and threats to the family. Furthermore, these "social toxins" create an unhealthy environment in which youth must live and mature, preventing them from adequately (or normally) developing (Ginwright and James, 2002; Brooks-Gunn, Ducan, Klebanov, and Sealand, 1997).

This level of trauma would constitute an offline turning point in the life of user M-44, and as such, could only be viewed online through self-proclamations. In such a case, these fairly traumatic life events would be considered significant and life-changing enough to manifest themselves online through the user's need to reminisce. For example, as was stated numerous time throughout the course of user M-44's online trajectory, he seemed to display a desire to become a martyr himself (following in the footsteps of previous family members). Many academics to date believe oppressive and toxic environments to foster emotions and desires of "depression, loneliness, and suicidal tendencies" (Ginwright and James, 2002, p.31; Brooks-Gunn et al., 1997). Thus, the significance of growing up in an environment filled with violence and trauma could very well stunt (or prevent) a youth from developing in a healthy manner, which may come across as a lack of development – as portrayed in the online setting.

Furthermore, LCT would stipulate that the "timing and sequencing" (Sampson and Laub, 1993, p.254) of turning points is of vital importance when examining the effect they have on later behavior. According to Agnew's (1992) GST, anger is a vitally important emotion, and is considered to be a key factor in the development of criminal behavior (Froggio, 2007). With such traumatic events occurring so early on in life, it is possible to foresee how the frustration and anger experienced offline could develop into the violent (even radical) behaviour seen online.

The second theme was *'development in narrative (with pseudo-extreme and least negative individuals)'*. These individuals tended to vary in their speech patterns over time, with the turning point of entrance into adulthood/university (or the halfway point for adults) displaying a noticeable change in each user's sentiment and content of posting. While many minors may not have started out negative in their sentiment, they most definitely developed into these tendencies over time. The majority of minors, however, did not necessarily develop into more negative and extreme forms of narrative.

They simply portrayed a development of maturity and responsibility – as they quickly realized the life demands required of them after leaving high school (aka. entering university, moving out, and possibly even getting married).

Some minors considered to be somewhat negative in their speech did in fact develop into more extreme forms of posting as they transitioned into adulthood, simultaneously exhibiting increases in frustration and annoyance with other users on the forum. These individuals who developed into more extreme forms of negativity (as per their sentiment trajectories and qualitative analysis), merely increased their use of negative and extreme words (and posting of extremely negative news articles) – hence the decreasing sentiment over time. They did not necessarily develop into more extreme forms of thinking or acting, as they would typically rebut anyone supporting these types of violent activities (such as martyrdom and bombing civilians). For both groups, it was common for users to develop within their forum, increasing their interests in more controversial topics pertaining to politics, international affairs, and terrorism in the Middle East.

While literature to date has yet to comprehensively address the extent to which youth development can manifest online, some academics have addressed the notion of online peer interactions and communications leading to frustration and annoyance with one another (McInnerney and Roberts, 2004). In addition, Huffaker (2010) notes the impactful nature of negative affect (or negative emotions) expressed online in encouraging further negative feedback and reciprocity. Thus, it would seem logical to assume that the development of frustration over time within this group of individuals (in theme two) could very well be attributed, at least partially, to the somewhat controversial setting in which these conversations took place. This setting, whereby individuals tended to discuss increasingly negative and even violent topics, allowed for an increasing amount of negativity and frustration to develop between individuals through their interactions and conversations, many of which led to said individuals leaving their respective forum as a result of forum fatigue – becoming tired and frustrated with the members of a forum, as well as the forum itself.

Finally, the third theme was *'using forums as a stress outlet & means of support'*. These individuals tended to rely on their respective forum for support and advice relating to challenging life events. Findings revealed these individuals to use their forum as a means by which to alleviate stress, either through procrastination, or "venting" – essentially, expressing their frustration/anger with regards to a key event or situation via short bursts or long monologues of emotional expelling. According to Wellman, Salaff, Dimitrova, Garton, Gulia, and Haythornthwaite (2009), these online social resources do not solely allow for the exchange of information to take place, but more importantly provide individuals with the opportunity to find emotional support through others online who they may not even know. Based on the findings from qualitatively analyzing individual user's turning points, it seems as if many experience these life-altering transitions (offline), and then garner support and relieve stress via their new community online.

The transition from being a minor to being an adult can be a fairly arduous process for many, especially those experiencing simultaneous turning points and transitions of a more precarious nature – such as a death in the family, or an unforeseen geographic relocation. According to Sampson and Laub (1993), the ability for a minor to transition seamlessly into adulthood becomes a vital factor for healthy development. Based on the quantitative findings of the current study, this transition into adulthood did in fact coincide with an increase in negative sentiments. Qualitatively, it became evident that most all of the minors partaking in discussions online were experiencing stress and strain during this time as a result of more general life factors (such as leaving the home, starting university, attaining a job, etc.). In order to cope with these stresses, many began using their respective forum as a stress outlet and means of support. As such, it would appear as if the majority of minors (and even adults) found solace in their new online community, easing their transition into adulthood.

With the exception of topics pertaining to high school (and related youth interests), both minors and adults tended to discuss fairly similar subject matters in their respective online forums. The issues of politics, culture, and terrorism (specifically in the Middle East) were the most common points of discussion for both groups of individuals – displaying little qualitative differences in this regard. There were also a few traits that

could be found amongst both groups. Rationality, objectivity, and maturity all seem to be present in individuals of varying ages, suggesting these traits to be more so attributed to the individual themselves (through personality and temperament), as opposed to traits such as age and/or gender. A nineteen-year-old may display these traits to the same extent as a user in their thirties or forties.

Where the groups did differ was in their manner of speech and additional topics of discussion. In the former situation, it became evident that the minors were more naive in both their writing styles and opinions, whereas the adults presented themselves in a more logical and even rational manner (with exceptions, of course). In the latter situation, topics related to high school, finding part-time jobs, living at home (with parents and siblings), and determining what to do with their lives were more so common with the group of minors, compared to that of the adults. Adults tended to discuss topics related to current events, politics, culture, and family (which minors similarly discussed, in addition the aforementioned topics).

Offline, it would be considered normal (or common) for teenagers to be disinterested in political and or religious affairs, as they have their own social lives to experience. Many of these teenagers will grow into and develop political, religious, and general international interests as they mature into adulthood. That being said, there will always be those teenagers who develop an interest for such topics at an early age – these youth are quite evident on these selected forums, as they are the ones to initiate, provoke, or aid in furthering a conversation as they can take from a wealth of knowledge to foster discussion. Overall, Canadian minors partaking in online Islamic forum are still attending high school, socializing, living at home, and engaging in typical teenager activities and or behaviors – with slight alterations depending on culture and religion. One of the only major differences between these youth and others (not found on these forums) is the fact that they are intentionally choosing to spend a considerable amount of time online – conversing with others, forming social networks, and growing as a person with natural influences from their respective forums.

Many forum users were frequently asking questions with regards to the religion of Islam and Islamic culture; these individuals tended to be the ones who were curious and

seeking knowledge – especially if they were 'converts' to Islam. While this, in itself, is not associated with violent extremism (as many seek further knowledge to better understand their religion), it has been suggested by scholars, intelligence professionals, and even former terrorists, that the activity of seeking knowledge can highlight individuals for recruitment by terrorist organizations (Masi, 2014). Mubin Shaikh – a former recruiter (in Toronto) for the Taliban, now acting as a CSIS operative – stated in an interview with Alessandria Masi of *International Business Times*, that when recruiting:

> There [are] certain things looked for: people who didn't know the religion as much, [and] people who were converts, because converts would probably have problems with their parents at home, so they were more likely to stay in our [terrorist organization's] company.

While the current study did not set out to profile terrorists, or even potential terrorists – as such a study would require a different data set and analytic strategy – there were a select few users who self-reported actions of terrorism, and some who self-reported intent to engage in actions of terrorism. Although these individuals were the minority (in both the minors and adults groups), they were still present within the relatively small sample of users collected, and extracted, for analysis.

Although graphing sentiment trajectories provided a good base from which to sample inconsistent or consistently negative online trends, once qualitatively analyzed, it was determined that these sentiment trends did not quite correspond to the qualitative findings. For example, those who displayed qualitatively consistent sentiment profiles exhibited inconsistent sentiment trends (based on sentiment analysis), whereas those who were qualitatively developing in their sentiment over time displayed a combination of both consistent and inconsistent sentiment trends.

Some reasons as to why this may be are as follows: 1) several time periods of analysis (6-months) had only a mere few posts from which to analyze – skewing the average for the time period of analysis, and creating an inconsistent trend; 2) Sentiment analysis captured articles that individuals had posted online – sentiment which may have been negative, but not necessarily representative of the individuals personal opinions/beliefs, and 3) in some instances, sentiment analysis captured the original post for which said user was responding – meaning there would have been a sentiment score

averaged up for a post that technically encompassed another users sentiment. Such findings suggest more work is needed to better develop the SentiStrength program and obtain more accurate and representative sentiment scores, as well as to better understand how sentiment analysis can provide accurate and supportive findings to corroborate the qualitative (or "contextual") aspect.

While the quantitative (SentiStrength) and qualitative methods of analysis did not necessarily correspond, both tools did in fact measure negativity over time, allowing for a slight overlap in objectives. However, each analytic tool remains a separate and distinct concept, as both measure their own separate phenomenon over time – with SentiStrength measuring user sentiment from a quantitative and mathematical approach, and qualitative analysis accounting for the contextual factors surrounding user sentiment. It is difficult to determine the exact amount (or percentage) each tool explains or accounts for in the other (in other words, how much they overlap), but when comparing the top five most negative users as determined quantitatively, with those determined qualitatively, there was no overlap between the two groups. This finding suggests a limited amount of overlap (if at all) between the two analytic tools, at least at the top.

Chapter 6.

Conclusion

Drawing from Life Course Theory (LCT) and General Strain Theory (GST), the content of posts from a sample of 48 minors and 48 adults were examined in order to address the development of negative emotions in the online context. With a particular focus on whether the turning point of entrance into adulthood could be associated with a change in sentiment expressed online, quantitative results suggested this turning point to be important for minors, with adults displaying a significant change in sentiment over time with the absence of it. Qualitatively, most users displayed a change in overall posting content throughout their online trajectory; but a select few did not display any development – these individuals were the most negative and extreme on the forum.

As the current thesis attempted to address a somewhat under-researched area of study, using fairly novel methods of analysis (i.e. SentiStrength), several limitations should be noted. Firstly, of those users qualitatively examined (in both the minors and adults groups), only the negative individuals displaying inconsistent or consistently negative sentiment trajectories were examined qualitatively. As the current study intended to focus predominantly on the development of negativity over time, such a research decision to focus on negative trajectories was warranted, but does constitute a bias and limitation. Users exhibiting positive sentiment trajectories were not qualitatively examined, and as such, were not accounted for in the overall findings. This presents a limitation, as their qualitative (and contextual) stories were not accounted for. Thus, it remains unknown the extent to which these individuals may have truly been displaying developments of negativity or violence qualitatively, since their sentiment trajectories did not exhibit such a trend.

Secondly, a methodological limitation of this thesis pertains to the fact that the entire study was premised on the notion that users were revealing accurate information online regarding their age, geographic location, and overall content of posts. Most everything analyzed from these online posts were taken at face value, something which may present as significantly detrimental to the study if found to be inaccurate. That being said, even if face-to-face interviews had been allowed (and conducted), much of this limitation would still occur, as there would be little way to verify or corroborate the accuracy of the content (or stories) being shared by said individual(s).

Thirdly, the inclusion of only two turning points (entrance into adulthood, and entrance into university) may in fact present a limitation for the current study, as the inclusion of additional turning points – stipulated through LCT literature – may have explained more. Based on the findings of the current study, it seems as if statistically, For example, findings from the current study suggested the turning points of entrance into adulthood and university to have significant importance in altering the trajectory of an individual's sentiment trend (becoming more negative over time). However, the same could be said for the adults group – once the individual passed the halfway mark of their time online, there was a statistically significant change in their sentiment trend (become more negative over time). Such a finding suggests there could be other factors (and turning points) effecting the progression / development of sentiment online.

With a fairly significant limitation being the limited inclusion of turning points to qualitatively analyze, future studies would do well to incorporate other transitions and turning points so as to better understand the extent to which Life Course theory can be applied in the online context, if at all. As derived from LCT literature, the most important variables to take into account would be "school, work, the military, marriage, and parenthood" (Sampson and Laub, 1993, p.254). In addition to these more traditional turning points and life transitions, future studies might consider including 'geographic re-location' and 'death/sickness in the family' – two additional turning points revealed to be evident, and somewhat impactful, throughout the qualitative analysis process of the current study.

Fourthly, sentiment analysis (or SentiStrength) tended to capture articles in their entirety, which individuals had posted online as part of their comment or response. As such, the overall sentiment score generated for those posts would have been somewhat unrepresentative of the users true opinions, thoughts, and beliefs – especially if the article was being posted as a joke or counter-argument to the point they were making. Likewise, in some instances, sentiment analysis captured the original post a user was responding to – meaning there would have been a sentiment score generated for a post that technically encompassed another users sentiment (or opinions and beliefs), thereby skewing the overall sentiment trajectory for that user. Lastly, the SentiStrength program was not designed to account for, or capture, the contextual elements of sentiment online. By this, I mean that users could very well have been speaking in sarcastic terms, and SentiStrength would have generated an overall score reflecting the positive or negative nature of said comment. In addition, users may have been positively agreeing with a very negative (or even violent) statement – warranting a negative overall score – yet, SentiStrength would have generated a positive score based on the words being used (and visa versa).

Fifthly, as was determined in theme two – 'development in narrative' – the continued debating, arguing, and general atmosphere fostered on these forums tended to encourage statements of increased irritation. As such, there appeared to be a development over time with regards to frustration and overall negativity. This, however, was not a result of internal development into negativity – possibly initiated by a life turning point, or change in beliefs / opinions – but instead, external conflict between members. The aim was to measure the extent to which transitioning into adulthood (for minors) affected the overall development of user sentiment online, not to measure the development of negative based solely on external interactions and disputes. As such, the inability for SentiStrength to differentiate between the internal development of negativity (or, the extent to which an individual is truly developing more negative or violent thoughts and opinions *within* themselves over time) and external development of negativity (presented in the form of developed frustration and annoyance *between* users as they interacted), acts as a limitation of the current study.

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Overall, literature to date has failed to adequately address within-individual development in the online context. The current study sought to address this limitation by doing exactly that. While the findings of this study should not be considered all encompassing – to the extent of explaining (and understanding) the exact process by which the Internet serves to foster personal development – use of the Internet (specifically online forums) did appear to serve as a strategy to understand the development of maturity online. Qualitative findings presented ample examples of such a concept (most of which were present in theme two), with only a select few (those of a more extreme and radical nature) failing to exhibit this trend.

While it would have been ideal to use the current study (and subsequent findings) to inform the process of radicalization in the online setting, the current design was not intended to accomplish such a goal. Future research, however, might benefit from expanding the current research design to include a broader sample of all nationalities (not simply Canadians), and several more Islamic forums. Research goals would need to focus specifically on better understanding the process of internal (individual) development one would need to experience online in order to become radicalized – including analyzing turning points and identifying 'indicators' of possible radicalization – as well as how and whether violent radicals may influence others online, if at all.

Furthermore, in order to truly study the phenomenon that is online radicalization, the research design would need to encompass some form of retrospective analysis for previous cases whereby individuals (or group of individuals) became violently radicalized into terrorism – so long as these situations have occurred. In a similar fashion to that of Vidino (2011), whereby he amalgamated all known plots made against targets residing within the European Union (EU) between 2006 and 2010 in order to identify characteristics and networking capabilities to Al-Qaeda (and movements alike), a list would need to be created encompassing the various characteristics and indicators present throughout the radicalization process.

In creating this type of retrospective study, it would be vital to draw from Ducol et al. (2015), as a very similar research design was proposed (and conducted) in their

study on the social psychology of the Internet in connection with violent extremism. Ducol et al. (2015) examined fifteen confirmed case studies whereby individuals engaged in acts of violent extremism, and acknowledged the importance of the Internet in facilitating, or playing some role in, the radicalization process leading to the commission of these acts. This study does an excellent job of identifying a list of individuals who were known to engage the Internet throughout their trajectory towards violent radicalization, as well as how they used the Internet during this time. However, future research would need to analyze these cases in order to determine how said traces of radicalization were manifested online, and whether or not there were any turning points in their narrative that may have marked a significant change in their overall trajectory towards more violent and extreme forms of discourse and behaviour (providing 'indicators' to look for in the future). Such a research project would constitute an extension of the current study, and as such, would be able to utilize the findings presented thus far.

Since those who were most radical (presenting as fairly violent in nature) displayed little-to-no development over time (theme one), additionally revealing themselves to have experienced traumatic life events (aka. User M-44), it might be prudent to consider implementing programs designed to address post-traumatic stress disorder in youth. Generally, policymakers (and the like) have tended to place blame on the youth, classifying them as a danger or threat to society (Ginwright and James, 2002). While these programs no doubt currently exist in the form of specific types of psychological and psychiatric counselling, few actually address how youth are dealing with these issues, as well as how they could be hindering healthy development (Ginwright and James, 2002, p.31).

In addition, various programs have been established with the goal of countering violent extremism; however, few have truly been examined with regards to assessing their effectiveness (Davies, Neudecker, Ouellet, Bouchard, and Ducol, 2016; Berger, 2016), and those that have seem to target individuals in the radicalization phase – as opposed to the pre-radicalization phase, which would constitute the developmental aspect of the current study. Providing the appropriate resources to youth who appear to be displaying warning signs for more extreme and violent forms of online discourse and

behaviour might help in preventing (or re-directing) further continuation of said behaviour.

Moreover, if these individuals begin their time online highly negative in their narrative, this could be an opportunity for intervention, as the current findings suggest that those who start highly negative (even violent), tend to consistently display this pattern throughout their trajectory – presenting concerning attributes, such as those displayed by users M-44 and A-44. While this tactic may not necessarily be directly related to preventing violent radicalization (as it would be too big a leap to suggest such an outcome), such an intervention strategy would no doubt address underlying psychological issues present in these individuals.

In conclusion, while there are many avenues for future research that may be taken based on the findings of the current study, it is equally important to make note of the avenues that should be avoided. For example, using the current research to aid in the task of targeting youth (or adults) for counterterrorism of surveillance purposes would be pre-emptive, and largely misleading, as the current findings were not intended to inform such an undertaking. In order to conduct such a task, the aforementioned research design – employing retrospective analysis on pre-determined cases in which individuals successfully became violently radicalized into terrorism – would be essential, as this type of study would assume radicalization to have taken place (as opposed to the current study, which does not).

Although it is possible to see how online interactions and overall presence can be part of a portfolio of angles to follow when attempting to better understand the Internet and radicalization, these avenues should not be used in isolation as a decision making tool for intervention strategies related to countering violent extremism / radicalization. There remain various additional factors – psychological, sociological, political, and ideological (to name but a few) – that are said to be involved in the radicalization process, and would need to be taken into account (Davies et al., 2016), for each individual follows their own unique pathway. As such, the current study was able to produce findings that would be greatly beneficial to informing future research on the Internet as a possible pathway towards (violent) radicalization, as well as further existing

literature addressing within-individual *personal* development of youth in the online context.

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