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# AN ONLINE SPACE-TIME BUDGET AND PROPENSITY FOR CYBERCRIME BY STUDENTS OF TERTIARY EDUCATIONAL INSTITUTIONS IN JIGAWA STATE, NIGERIA

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## ABSTRACT

This study investigated the time budget on internet-based social networking and tendency for deviance interaction among students of various tertiary educational institutions in Jigawa state Nigeria (N=600), living in different accommodation system. The study purports to identify the common social networking platforms, and the time budget for interactions on them by the participants. The propensity for cybercrime in the social networking interactions with the mediating effect of low self-control was also tested, using descriptive and inferential statistics. The results of descriptive analysis revealed that the participants mostly visit WhatsApp, Facebook, Instagram, and other sites. The visitation is higher among campus-based participants, followed by off-campus students, then the students that live with their families The night time is the most common moment for the participants engagement in internet-based social networking (N=239), followed by morning (N=65) then afternoon (N=64), and midnight interactions being the least (N=30). Significant number of the participants (N=202) however reported no specification for the most common time use of internet-based networking (they visit any time they wish). The inferential statistics using Pearson product moment correlation (PPMC) suggests nonexistence of association between indicators of an online interaction relating to substance abuse and property crime with measures of low self-control. However, an online sexual-related interaction (sexting) reveals weak positive association with measures of risk taking. Creating online educational development groups in social networking sites with presence of mentors' leadership as guardians was suggested among others, to reduce the more time spent by students for illicit interactions, and instead the spaces be utilized for educational development purposes.

**Keywords**: Space, Time budget, Social Networking, Self-Control, Crime.

## 1. INTRODUCTION

The social world is continually on transitional order and perpetual change. The scientific innovations and discoveries remain influential superstructures that shape social activities and interactions within the domains of social structures. These interactions are not limited to physical spaces, but also virtual spaces, where many individuals, particularly youths utilize it as an alternative for physical space. Social scientists have invested a lot of efforts to explore the effect of virtual interaction on social stability and development. The extent to which the Internet and related virtual environments constitutes new online interactions and sub-communities, which youth navigates, now extend beyond the traditional family, school, and peer-group (Kubrin, 2017). This is relevant because youth and adolescence ages are the critical

Vol. 01, No. 02; 2022
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life moments for navigation and sociation, in which individuals create the wholesome meaning of life, aspirations, and achievement. Usually, aspirations for identity negotiation drive many young individuals

Most of the students in post-secondary or tertiary institutions are in their adolescence stage, a period of emerging adulthood (Sussman & Arnett, 2014). It is a period of life transition, because from 18 to 25 years of age, individuals gain relative autonomy from their guardians, and experience shifts in social roles and normative expectations for their behaviour. In this period of emerging adulthood youths pursue higher education or vocational training over an extended duration (Sussman & Arnett, 2014). In the school life, students engaged in various activities including academic and leisure structured interactions, within and outside the school premises, aimed at achieving wellbeing and educational goals. The emergence of social networking sites, which exert lot of time spent in socializing, have extends the students interaction beyond physical spaces. Thus, need for exploring the extent of time budget across the spaces of social networking is immensely needed, particularly issues concerning propensity for criminality, with mediating effect of self-control among youth. Previous studies reveal that, currently, youth spend much of their time on social networking sites interacting with peer groups, the interaction consequently result in creating access to substance abuse cultures, and sexual related offences (Abrha, Worku, Lerebo, & Berhane, 2019; Burén & Lunde, 2018; Miller et al., 2021). The evidence for online property crime however attracts less attention from researches, but the nature of unsupervised interaction of youth on the virtual spaces, signal higher tendency for serving as an avenue for recruiting new members into delinquents' subculture group. This is important because the scrutiny of space-time budget models, exert more influence in eastern and western developed countries, while the research outcomes set to vary across communities, social groups, and cultures (Antonaccio & Botchkovar, 2015). Hence, this study.

## 2.THEORETICAL BACKGROUND AND LITERATURE REVIEW

The use of space-time budget model was introduced in criminological studies by Wikström, Ceccato, Hardie, and Treiber (2010), particularly in understanding the role of exposure to specific environment (space) for interactions, and individual's propensity for engaging in criminal behaviour. This implies to the convergence of space and time in creating a setting suitable for committing criminal act, but also subject to individual's crime-averse morality and level of self-control. They used the concept of activity field to illustrate the exposure (frequent interaction) to specific setting by individuals, showing the extent of time spent by individual in a particular setting. The space-time spectrum demonstrates its usefulness in criminology, because it provides an enabling method for the study of situational causes of crime and victimization (Hoeben, Bernasco, Weerman, Pauwels, & van Halem, 2014).

The method also produced measures for theoretical concepts in deviance and crime studies, such as individual lifestyles and individual routine activities. Moreover, it enables the study of adolescents' whereabouts, which extends the traditional focus on residential neighbourhoods of social disorganization theory (Hoeben et al., 2014). It also provides an important turning point in understanding how youth engaged in deviant behavior, while they are involved in unstructured activities, especially when they are with their peers, in the absence of guardians' supervisions. Here, unstructured activity refers to youth hangout, spending time without designed agenda. (de Jong, Bernasco, & Lammers, 2020). The presence of peers in unstructured time and activity budget increases the tendencies of engagement in deviant acts, provided the guardians to exercise control are not present (Agustina & Felson, 2015; Hoeben et al., 2014). Therefore, in exploring the settings of space in which youth spend unsupervised

Vol. 01, No. 02; 2022
ISSN: 2583-6560

time with peers, understanding the relevance of the convergence of crime-motivated youths, and absence of guardians to control the situation results in criminal activities. The focus on youth that are students in tertiary institution in this study can be justified by the fact that, their age is characterized by life in which they pursue higher education, a period of relative freedom from the dependency and monitoring by their guardians. This freedom enables them the opportunity to explore diverse potential life directions (J. J. Arnett, 2000).

The common explanations of space-time budget in crime studies have focused more on physical setting (offline) than online settings. The convergence of crime motivating factors on the spectrum of virtual interactions among youth is not given due attention by researchers. Social Networking Sites (SNS) are internet-based services that enable users to interact in a network of connections, and also allows users to share information, news, status updates, comments, photos, video or other forms of content (Sánchez-Arrieta, González, Cañabate, & Sabate, 2021). There are various applications used as networking platforms that provide spaces for interactions among users, such as Facebook, WhatsApp, Instagram, twitter and so on. Studies have shown that routine activities of adolescents have tremendously changed, as most of them spend more time in homes, busy with electronic devices, compared to previous generations. This makes it clear that the theory of routine activity has flexible attribution; as such it can be adaptable, even with changing times and social circumstances (Agustina & Felson, 2015). According to Holt, Bossler, and May (2011) there are four common forms of offending in virtual environments: deception/theft, pornography, violence, and cyber-trespass. Another study suggests existence of substance abuse as cybercrime commonly practice by youth (Miller et al., 2021). Even though, In United States Holt et al. (2011) found cyber deviance to have association with low self-control and deviant peer associations. In another study frequent computer use and offline bullying victimization were related to an acceleration of the increase of cyber deviance over time (Bae, 2017). This clearly indicates the implications of time budget online in developing deviant behaviour. This happens because advancement in communication technology, took the hang out space to virtual stage, where supervision is limited and difficult by guardians (see (Miller et al., 2021; Pratt et al., 2010). In this regard, the proponents of routine activity reject the notion of entire neighbourhood to be criminogenic, as assumed by social disorganization proponents; rather they accept the notion that presence of setting must be created, which is favourable for the act of crime to occur (Agustina & Felson, 2015).

Previous researches have indicated the relevance of using space-time allocations for engaging in activities over a given specification of period like day, days, week and so on (Hoeben et al., 2014; Per-Olof, Vania, Beth, & Kyle, 2010) in criminological studies. In physical sense, school environments provide similar space of interaction, which is structured for learning. The environment as space and the time of schooling is structured and supervised normatively to regulate activities towards learning character, knowledge and morality (J. Arnett, 1992; Yan et al., 2017). In this regard Chen and Zhang (2010) offer a concise view that the compression of space and time as a result of social networking sites and globalization, the world has shrunk to a smaller interactive platform. Individuals form different cultures interact and influence each other within seconds of receiving or sending messages. Notably, there is growing empirical evidences for the increase in illegal activities from the social networking sites indicated by recent researches might indicate crime displacement, relating to traditional forms of delinquency are being shifted to cyberspace (Chen, Chang, Wang, Wang, & Wei, 2021).

More researches are exploring the change in youths' routine activities in to virtual spaces, as most of them spend more time in homes, busy with electronic devices, compared to

Vol. 01, No. 02; 2022
ISSN: 2583-6560

previous generations (Elonheimo, 2014; Holt et al., 2011; Miller et al., 2021). Recent study on youth (aged 15-25) were used as representative sample in U.S., to examine the effect of online peer group identification and social media homophily (the tendency for seeking out attraction to those who are similar to someone) on substance abuse. The findings show that online belonging and social media homophily are associated with some forms of substance use (Miller et al., 2021). Another study reveals interactions on internet-based social networks for partner seeking is associated with increased sexual risk behaviours (Young & Rice, 2010). Suggesting the role of social networking sites as spaces for illicit activities among youth. In essence, social networking sites provide virtual spaces street gangs, through which they showcase their media files to entice new members for recruitment (Morselli & Décary-Hétu, 2013). This happens because the cyber space now provides extended chances for identity seeking and identity expression. Therefore, the online identity-driven behaviour, make adolescents to create online groups through which they shared identities and interests, including crime related identities (Miller et al., 2021).

An important point to note here is that, most of the studies on space-time budget were sought in global west and eastern countries. The current study sought to explore the time allocation for virtual space interaction by students in post-secondary schools of Jigawa state Nigeria. As an attempt to present the experience of the global south in adolescents' context of social networking interaction, particularly on the time allocation of using the virtual networking sites, and how type of students' accommodation can influence the level of engagement in the virtual interaction. This is important because previous study by Bingen, Steindal, Krumsvik, and Tveit (2019) indicate students living off-campus face tension between their activities' schedule and time needed for their studies. Even though, a study indicated nonexistence of significant difference between campus-based and off-campus students in terms of achievement (Breslow, 2005), but differences can be sought in various ways, such as in terms of unstructured socializing in relation to school regimentation.

In extended context, some tertiary school students live with their families, which differ with those that live off-campus in private accommodation. A study have shown that no differences exists between students living with families, and those that are separated from their families in terms of state-trait anxiety levels (Recep, Emrah, & Bilge, 2016). However, testing the situation among youth in the global south, and particularly on the influence of time budget in social networking spaces is of great relevance. This is because, youth, particularly students in high and tertiary schools spend lot of time on virtual networking, and empirical evidence reveals that students are not comfortable to use social networking sites for educational interaction.(Howard, Curwen, Howard, & Colón-Muñiz, 2015). This indicates the importance of exploring criminogenic influence of the internet-based social networking among students. Moreover, large number of studies show excessive and inappropriate use of social networking sites have negative effect on students' academic achievement (Alotaibi, 2019; Arora, Albahri, Omar, Sharara, & Taheri, 2018; Yan et al., 2017). The current study explores the online space-time budget and tendency for deviant or criminal interaction among young students of tertiary institutions in Jigawa state, Nigeria.

**Objectives of the Study**

The objectives of the study are to explore the most commonly used social networking sites, the commonly time used for social networking activities, and evidence of criminal activities with mediating effect of low self-control among students in Jigawa state tertiary educational institutions.

Vol. 01, No. 02; 2022
ISSN: 2583-6560

**Research Questions**

1. What are the most commonly social networking spaces visited by the students of Jigawa state tertiary institutions?
2. What are the commonly times used for social networking by the students in Jigawa state tertiary institutions?
3. How does low self-control influence criminal activities in social networking sites among students of Jigawa state tertiary educational institutions?

## 3.METHODOLOGY

*The Participants' Sample*: The cross-sectional survey, study 600 adolescent students in Jigawa state tertiary educational institutions, comprising male students (N=300) and female students (N=300), who are within the age range of 18-22 years. Simple random sampling method was used for the selection of the four tertiary educational institutions in which the study took place. The participants of the study were selected randomly through multi-stage cluster sampling method. The respondents were initially selected by purposive sampling with consideration of gender difference, then snowball technique was utilized to reaching the targeted number of participants for the study.

*Participants' Consent:* The gatekeepers and the participants of the study were provided with the information about the research, so that they could make an informed decision to participate. The permission of the educational institutions' leaders as legal guardians was sought, who were considered as the gatekeepers for the students' consent, through which the target participants' consent were obtained. The participants' consent was obtained through verbal expressions.

*The Instruments for Data Collection*: The questionnaire had 18 items covering five sections, sociodemographic data, extent of using social networking applications, the times commonly utilized for social networking on virtual networks, evidence of cybercrime engagement through the interaction, and level of low self-control. Adapted from the works of Wikström et al. (2010), which measure time budget across virtual spaces of interaction, instead of physical spaces and propensity for engagement in criminality, and Grasmick, Tittle, Bursik, and Arneklev (1993)for measuring impulsivity and risk-taking in adolescents. The questionnaire was used to collect quantitative response from the participants, which was subjected for analysis, using Special Package for Social Science (SPSS) version 21.0 software.

## 4.DATA ANALYSIS

The data gathered from the participants were analysed using the Statistical Package for Social Sciences (SPSS version 21.0) A combination of descriptive and inferential statistics is used to present the data. Descriptive methods utilized include means, standard deviations and frequency tables. The inferential statistics uses Bivariate Pearson Product Moment Correlation (PPMC), and Univariate Linear Regression.

## 5.RESULTS

**Question 1. What are the most commonly visited social networking spaces visited by the students?**

Vol. 01, No. 02; 2022
ISSN: 2583-6560

**Table 1. Descriptive Analysis of Level of Participants' Visitation of Social Networking Sites (N=600), Range (0-3)**

| | Students' Residence Type | N | Mean | Standard Deviation |
|---|---|---|---|---|
| **Facebook** | Family House | 158 | 1.4430 | 1.11443 |
| | Campus-Based | 293 | 1.6007 | 1.16201 |
| | Off-Campus | 149 | 1.9530 | .94680 |
| **WhatsApp** | Family House | 158 | 1.8165 | 1.05781 |
| | Campus-Based | 293 | 2.0887 | 1.01309 |
| | Off-Campus | 149 | 2.1007 | 1.01172 |
| **Twitter** | Family House | 158 | .6582 | .98247 |
| | Campus-Based | 293 | .9317 | 1.14771 |
| | Off-Campus | 149 | .6980 | 1.02473 |
| **TikTok** | Family House | 158 | .7025 | 1.98077 |
| | Campus-Based | 293 | .9352 | 1.16126 |
| | Off-Campus | 149 | .7383 | 1.01606 |
| **Instagram** | Family House | 158 | .7532 | 1.03866 |
| | Campus-Based | 293 | 1.0034 | 1.11496 |
| | Off-Campus | 149 | .9262 | 1.13955 |
| **Telegram** | Family House | 158 | .5316 | .88635 |
| | Campus-Based | 293 | .6962 | 1.02028 |
| | Off-Campus | 149 | .5638 | .94670 |
| **Others** | Family House | 158 | .6835 | .08331 |
| | Campus-Based | 293 | 1.0000 | .06906 |
| | Off-Campus | 149 | .8926 | 1.06632 |

Table 1. 1 shows the mean average of social networking interaction among the tertiary institution students. The analysis reveals WhatsApp has the highest mean average of visits. Campus-based participants spent more time on WhatsApp (M= 2.0887; SD=1.01309), followed by students living off-campus (M=2.1007; SD=1.01172). Those students living with their parents have minimum average use of WhatsApp compared to other groups (M=1.8165;

Vol. 01, No. 02; 2022
ISSN: 2583-6560

SD=1.05781). Followed by Facebook, where Off-campus students reported highest visits (M=1.9530; SD=.94680), then Campus-based students (M=1.6007; SD=1.16201), again, the students living in Family House have the minimum mean average visits (M=1.4430; SD=1.11443). In the respective mean average visits, the social next networking site is Instagram, visited most by campus-based participant (M=1.0034; SD=1.11496), then off-campus participants (M=.9262; SD=1.13955), and students living with their family (M=.7532; SD=1.03866). The extent of visits to other social networking sites by the participants goes on in respective order of visits to other Applications, TikTok, Twitter, and Telegram. Campus-based participants lead in visiting all the social networking sites, followed by off-campus participants, and lastly the participants that lived in their family houses. The analysis reveals that the participants spent most of their time using WhatsApp than any other social networking platform. The mean difference of interaction between the WhatsApp and other social networking sites is not based on popularity, but the time spent in visiting the Platform.

**Question 2. What are the Times Commonly Used by the Students for Visiting Social Networking Sites?**

**Table 2.1 Descriptive analysis on Commonly Times Used by the Students for Virtual Social Networking**

| | **Time Range** | ***N*** | **Percent** |
|---|---|---|---|
| **Morning** | 6 a.m. – 12 p.m. | 65 | 10.8 |
| **Afternoon** | 12 p.m. – 7 p.m. | 64 | 10.7 |
| **Night** | 7p.m. – 12 a.m. | 239 | 39.8 |
| **Midnight** | 12 a.m. 6 a.m. | 30 | 5.0 |
| **Almost all the time** | No specification | 202 | 33.7 |

The table 2. Indicates night time (7 p.m. – 12 a.m.) as the most commonly time used by significant number of the participants in interactions on social networking sites, as reported by 39.8 percent of the participants. Another significant number of the participants (33.7%) reported no specification in timing their use of internet-based social networking interactions, suggesting their unstructured socializing in unstructured timing, because the visitation can occur any moment they so wish. Morning (6 a.m. – 12 p.m.) and afternoon (12 p.m. – 7 p.m.) times were utilized by closely similar size of participants (10.8% and 10.7% respectively) for socializing in social networking sites. This signifies daily physical schedules, including educational commitment in day times to have significant effect in reducing unstructured socializing on internet-based social networks among students. Moreover, some 5 percent engage in virtual chats in the midnight time (12 a.m. – 6 a.m.). Engaging in midnight can be a strategy to escape guardians' supervision, or having convenience for socializing. Empirical evidence suggests adults' crime usually takes place in the darkness of night (Cauffman, Cavanagh, Donley, & Thomas, 2015). But how does the time budget vary among accommodation of the students?

Vol. 01, No. 02; 2022
ISSN: 2583-6560

**Table 2.2 Cross-Tabulation on the Distribution of Time Budget for Using Internet-Based Social Networking Across Varied Students' Accommodation**

| | Family House (N=158) | | Campus-Based (N=293) | | Off-campus (N=149) | |
|---|---|---|---|---|---|---|
| **Time Budget** | ***N*** | ***%*** | ***N*** | ***%*** | ***N*** | ***%*** |
| Morning (6 a.m. – 12 p.m.) | 25 | 15.8 | 31 | 10.5 | 09 | 6.0 |
| Afternoon (12 p.m. – 7 p.m.) | 18 | 11.3 | 31 | 10.5 | 15 | 10.0 |
| Night (7 p.m. – 12 a.m.) | 58 | 36.7 | 120 | 40.9 | 61 | 40.9 |
| Midnight (12 a.m. – 6 a.m.) | 04 | 2.5 | 15 | 5.1 | 11 | 7.3 |
| All the time (no specification) | 53 | 33.5 | 96 | 32.7 | 53 | 35.5 |

Table 2.2. reveals that by percentage, students who stay with their families engage more in morning interaction in social networking (15.8%), followed by campus-based students (10.5%), then off-campus students (06%). By percentage, even though difference exists in terms of engaging in social networking interactions in the afternoon among students with various accommodation experience, but the difference that exists is not significant (family house=11.3%; campus-based=10.5%; and off-campus=10.0%). Generally, the students by percentage engaged more in social networking interactions than any other time. Also, no difference exists between campus-based students and off-campus students (both have 40.9%), and the family-house-based accommodation students records its highest percentage (36%), but lower than the campus-based and the off-campus based participants. In midnight interaction, off-campus students have the highest percent of interaction (7.3%), followed by campus-based students (5.1%), while the students that reside in family house have the least (2.5%). This can be related to the fact that students who reside in family house experience more guardians' supervision than those living in campus and private off campus accommodation. The analysis also shows that significant number of participants engaged in social networking interactions in no time specification (they interact with others through many applications any time they feel like to). But suggests no significant difference among the varying accommodation experience of the participants with regards to intensity of using the internet-based social networking applications in no time specification (Family house-based=33.5%; campus-based=32.7%; off-campus-based=35.5%).

**Question 3. How does low self-control influence criminal activities in social networking sites among students of Jigawa state tertiary educational institutions?**

Vol. 01, No. 02; 2022
ISSN: 2583-6560

**Table 3. Bivariate Analysis on the Influence of Low Self-Control on Criminal Activities in Social Networking Sites among the Students**

| | Do you chat on/ or giving | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Smoking cannabis (marijuana) or use of any intoxicant | x | | | | | | | | |
| 2. | Stealing from someone | .394**<br>.000 | | | | | | | | |
| 3. | Sex-related chatting (Sexting) | .378**<br>.000 | .409**<br>.000 | | | | | | | |
| 4. | Chat anyhow without much thought of the consequences | .022<br>.590 | .120**<br>.003 | .158**<br>.000 | | | | | | |
| 5. | Put some thought and effort to prepare for chat response | .057<br>.164 | .050<br>.220 | .113**<br>.006 | .374**<br>.000 | | | | | |
| 6. | respond with whatever pleases you even at the cost of some distant goal | .059<br>.151 | .117**<br>.004 | .176**<br>.000 | .382**<br>.000 | .470**<br>.000 | | | | |
| 7. | More concerned with short run than long run results | .086*<br>.036 | .120**<br>.003 | .184**<br>.000 | .254**<br>.000 | .350**<br>.000 | .467**<br>.000 | | | |
| 8. | chats or sharing media files that are little risky | .067<br>.100 | .138**<br>.001 | .164**<br>.000 | .277**<br>.000 | .303**<br>.000 | .364**<br>.000 | .474**<br>.000 | | |
| 9. | Do you habitually take risks just for fun | .129**<br>.002 | .156**<br>.000 | .214**<br>.000 | .244**<br>.000 | .296**<br>.000 | .301**<br>.000 | .353**<br>.000 | .500**<br>.000 | |
| 10. | feel excited in engaging in SNS interaction, even if | .092*<br>.024 | .144**<br>.000 | .217**<br>.000 | .315**<br>.000 | .295**<br>.000 | .320**<br>000 | .326**<br>.000 | .438**<br>.000 | .503**<br>.000 |

Vol. 01, No. 02; 2022
ISSN: 2583-6560

| | |
|---|---|
| that might get you in trouble | |

In table 3. the item 1,2, and 3 presents indicators for criminality in virtual interaction, while the rest items 4-10 measure low self-control. Where item 4,5,6, and 7 measure impulsivity, and item 8, 9, and 10 measure risk-taking. The bivariate analysis in Table 3. shows no significant association between indicators of substance abuse and property crime, and measures of low self-control. However, the indicator of sexual-related chatting (sexting) reveals weak positive association with measures of risk taking i.e., with habitual risk-taking just for fun (r=.214**; p=.000), and with feeling exited in engaging in social networking interaction, even if that might get you in trouble (r=.217**; p=.000). this suggests that students take risks in making sexual related interactions through social networking sites. However, in multiple associations between indicators of criminality in social networking interactions and measures of low self-control, the analysis indicate significance in statistical analysis, suggesting the impact of low self-control on the crime related outcomes particularly sexual related interactions in social networking socializing among the participants.

## 6.DISCUSSIONS OF THE FINDINGS

The findings show that the social networking interaction by the participants is categorized in to two; the frequently visited sites, and the less frequently visited sites. The most popular and frequently visited social networking sites among the participants are WhatsApp, Facebook and Instagram, while the less frequently visited sites are Twitter, TikTok and Telegram virtual medium for interaction by the participants. This supports the view by Agustina and Felson (2015) that internet-based social networking sites are enormously popular, convenient and immediately gratifying way to connect with others. The findings further show that off-campus-based students have the highest rate of interactions on the leading virtual networking platforms (WhatsApp and Facebook), followed by campus-based, and lastly the family house-based living participants. On the other hand, the campus-based participants have the highest rate of interaction on Instagram, Twitter, and TikTok. Followed by off-campus based students, the family house-based participants have the least interaction. This in a way highlights the role of family house and school setting in structuring virtual space interaction and time budget among the participants, and also appraising the study by Rakesh, Seguin, Zalesky, Cropley, and Whittle (2021) which highlights the relevance of positive family and school environments in mitigating the effects of unstructured interactions beyond family and school connections.

The night time (7 p.m. – 12 a.m.) is found to be the time when most of the participants engage in social networking interactions, with no significant difference between campus-based, off-campus-based, and family house-based participants. However, some significant number of the participants reported no difference in the timing of their social networking interactions, because they engage in the virtual interaction any time they like. There are low social networking interactions in the morning and afternoon period by the participants. The family house-based participants have the highest percentage of morning time interactions, while there is no significant difference in afternoon interactions by the varied group of the participants. Midnight interaction is also low and commonly engaged by off-campus-based, and campus-based participants than the family house-based participants. In recent meta-analytical study by Liu et al. (2022) found association between time spent on social media and strong tendency for

Vol. 01, No. 02; 2022
ISSN: 2583-6560

developing depression among youth. Suggesting increase in the chances of having depression by youth in each one hour increased in social networking use.

The findings further show no significant association between indicators of substance abuse and property crime, and measures of low self-control. But, risk-taking as a measure of low self-control reveals weak positive association with sexual-related interactions (sexting) in the participants social networking. This confirms the study outcomes by Young and Rice (2010) that internet-based social networks is associated with increased sexual risk behaviours. As well as the view of Morselli and Décary-Hétu (2013) that social networking sites provide virtual spaces for interactions among criminals, through which they showcase their media files to entice new members for recruitment. It also supports the study of Ward and Forney (2020) which suggests an unsupervised interaction of youth as responsible for their affiliation with criminals, or learning some offending behaviours, through unstructured socializing and differential reinforcement.

## 7.CONCLUSION AND RECOMMENDATIONS

The previous studies on space-time budget have hinted on the relevance of virtual spaces as a new emerging space for interaction among youth. The age of adolescence is critical in seeking out interaction and negotiating identity, sought to be realized through peer interaction. The school environment offers relative freedom to youth, and various chances for self-presentation and interactions, both conventional and criminal interactions. With the new extended network of interactions available among students, this study, as an experience from the global south utilizes space-time budget model in exploring the extent of interaction in virtual space across times budget within a day range, and propensity for engagement in criminal acts through the virtual interactions by the students of tertiary schools in Jigawa state Nigeria, who reside in various form of accommodations; campus-based, off-campus-based, and family house-based accommodation,

The study found WhatsApp, Facebook, and Instagram as the most popular virtual spaces frequently visited for social interaction by the participants, other sites like Twitter, TikTok, and Telegram are less frequently used by the participants. The virtual interactions mostly take place in the night time up to midnight, even though some significant portion of the participants use the virtual space for interaction in almost every time they wish, but few participants use the virtual space for interaction in the midnight to morning hours. There is significant difference in time spent among participants with varying accommodation system. Off-campus-based and in-campus-based participants engaged more in the internet-based social networking compared to those that live in family house-based accommodations

During social interaction in the interne-based networking platforms, low self-control plays mediating role through risk-taking in influence involvement in sexual related interactions by the participants. However, criminal interactions related to substance abuse and property crime were found to have no association with low self-control in the virtual interaction among the participants. Suggesting the sexual related interactions through internet-based social networking spaces, as the common criminal behaviour among the students of tertiary schools of Jigawa State.

Socializing with other people either in physical or virtual spaces is necessary and important, particularly when the outcomes turn to be positive and rewarding. Base on the findings of this research, the high magnitude of internet-based social networking interaction by the students indicates immense need for creating students' academic interactive groups, on the

Vol. 01, No. 02; 2022
ISSN: 2583-6560

social networking platforms. Groups that can generate positive impact to the students' academic development. Thus, some of the time spent in virtual interaction can be used for academic interaction, and reducing the chances for using it for illegal purposes. If created, the thriving of such online groups should be monitored by designated mentors as leaders. The students should also report to the mentors any unconventional response through sharing crime-enticing media by their colleagues, for appropriate action against it. Generally, the students need to be enlightened on the depressional effect of long time spent on social networking sites, so that they can decrease the time spent on online interaction, and decreasing the chances of depression among them.

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