Academic Procrastination Among Under Graduate Students Of Professional/ Non- Professional Courses Studying In Different Streams In Relation To Usage Of Mobile Applications

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Abstract:
This study investigates academic procrastination among under graduate students studying in Science & Social-science of professional/ non- professional courses in relation to usage of mobile applications (with high and low level). Random sampling was employed on the sample of 800 students. A significant difference in academic procrastination among undergraduate students studying in different science and social-science streams was found with high, average and high and low usage of educational mobile application as well as with high, average and high and low usage of non-educational mobile applications; a significant difference in academic procrastination was found among the undergraduate students studying in Science and Social Science streams using educational mobile applications, but no significant difference in academic procrastination was found among the undergraduate students studying in Science and Social Science streams using non-educational mobile applications. A significant interaction effect of Usage of Educational Mobile Applications/ Usage of Non-Educational Mobile Applications and stream of under graduate students studying in different courses was found on the scores of on academic procrastination. A significant difference in academic procrastination among undergraduate students studying in different professional and non-professional courses was found with high, average and high and low usage of non-educational mobile application; no significant difference in academic procrastination was found among the undergraduate students studying in Science and Social Science streams. The different levels of usage of educational mobile application as well as of non-educational mobile application (high, average and low) were not found having effect on the scores of on academic procrastination of undergraduate students. A significant interaction effect of Usage of Educational Mobile Applications/ Usage of Non-Educational Mobile Applications and stream of under graduate students studying in different courses was found on the scores of on academic procrastination.

INTRODUCTION:
Procrastination is a complicated problem found throughout society, particularly among the general public, and it manifests itself in both the academic and business worlds (Ferrari, Johnson & McCown; 1995). Procrastination is the result of putting off unpleasant chores

because of a sense of powerlessness as well as the lack of control of a person. Schraw et al. (2007) states the academic delay as 'delay of work which must be completed intentionally.' Academic delays can be described as delaying academic tasks so that optimum performance becomes very unlikely and leads to psychological distress (Ferrari, Johnson, & McCown, 1995; Ellis & Knaus, 1977). Day, Sullivan, & Mensink (2000), also reported that 50% of the students are problem-based and consistent. Ferrari, Ozer and Demir, (2009) conducted a study of delay and reported that 52% of students were involved in delays. Klassen et al. (2010) reported that 59% of one band reported that more than three hours a day 57% of another bachelor's student body reproduce. In Onwuegbuzie (2004), about 70% of students want to reduce their degree in academic activities. The fact is, by avoiding their academic activities such as preparation for the examination, their assignments and limitation of their studies that affect the use of skills and potential, students have become accustomed to declining. Kirschner and Karpinski (2010) explored that majority of Face Book users reported a negative impact, as it causes procrastination; problematic internet usage increases students' procrastination, Online activities (whatsapp) and academic preparation and distracts students from completing their assignments (Yeboah & Ewur, 2014; Janor, et.al., 2015). Yeboah & Ewur, (2014) explored that whatsapp is improving the effective flow of information and idea exchange among students, as Whatsapp and Facebook are used to make friends and converse, majority of respondents reported negative impacts such as bad language and spelling, late assignment submission, reduced study time, and poor academic achievement (Mingles & Adams; 2015). Yin (2016) revealed that students of both genders have good opinions regarding WhatsApp mobile learning; Okocha, Sani, and Paul (2017) puts technology as, that facilitates and enhances communication among families, friends, lecturers, and interactive learning. Lukas and Berking (2017) MT-PRO not only decreased overall procrastination, but it had improved academic procrastination; Rashidet.al. (2017) revealed that the combined impacts of PMP usage and academic procrastination had not emerged as significant indicators of academic performance. Derakhshiet.al (2018) revealed a substantial and positive relationship between the usage of social networks and academic procrastination. D'Souza et.al (2018) found Instagram addiction was more widespread among non-professional students; the length of membership in a social networking site influences academic procrastination (Efe & Efe; 2018); more students used social media, the more academic procrastination they had (Muslikah et.al; 2018). Sheikhlar and Sadeghpour (2019) found usage of social networks had an indirect relationship with academic procrastination; smartphone addiction was associated with academic procrastination Li et.al. (2020). Joseph and Varghese (2021) explored 20% to 40% of pupils are at high risk of developing Internet Addiction.

OBJECTIVES:

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1. To study the difference between science and social science streams undergraduate students in with different level of usage of educational mobile applications.
2. To study the difference in academic procrastination of science and social science streams undergraduate students using educational mobile applications.
3. To study the interaction effect of usage of educational mobile applications and stream of under graduate students studying on the scores of academic procrastination.
4. To study the difference between science and social science streams undergraduate students in with different level of usage of non-educational mobile applications.
5. To study the difference in academic procrastination of science and social science streams undergraduate students using non-educational mobile applications.
6. To study the interaction effect of usage of non-educational mobile applications and stream of under graduate students studying on the scores of academic procrastination.

SAMPLE OF THE STUDY:

Random sampling was employed on the sample of 800 students of 1st, 2nd, or 3rd year of graduation classes of Professional and Non-Professional courses studying in Science and Social science streams with high and low usage of mobile applications, studying in GNDU and its affiliated college of Amritsar District.

TOOLS USED:
1. Scale on Mobile App Usage (constructed by the investigator).
2. Academic Procrastination (Marks obtained in the previous class).

1. ANALYSIS OF VARIANCE ON ACADEMIC PROCRASTINATION AND USAGE OF EDUCATIONAL MOBILE APPLICATIONS

The mean and S.D. of usage of Educational Mobile Application of undergraduate students studying in different courses, F-value has been calculated and presented in the Table 1 below:

Table 1: Mean scores on Academic Procrastination of Undergraduate Students studying in different Science and Social Science courses of Usage of Educational Mobile Application

	Stream	Mean	S. D.	N
Usage of High Educational Mobile Application	Science	72.50	12.90	82
	Social Science	71.49	12.24	134
	Total	71.88	12.47	216
Usage of Average Educational Mobile Application	Science	79.02	8.80	179
	Social Science	73.28	10.51	189
	Total	76.07	10.12	368

Usage of Low Educational Mobile Application	Science	77.73	8.85	131
	Social Science	74.75	10.19	85
	Total	76.56	9.49	216

Table 2: Summary of Two-way ANOVA of Under-Graduate Students studying in different courses of Usage of Educational Mobile Application on Academic Procrastination

Sources of Variation	Sum of Square	df	Mean Sum of Square	F-Ratio
Usage of Educational Mobile Application(A)	2634.07	2	1317.04	**12.04****
Educational Stream (B)	1892.71	1	1892.71	**17.31****
Interaction (AXB)	778.51	2	389.25	**3.56***
Error Term	86835.96	794	109.37	

*Significant at 0.05 level, **Significant at 0.01 level

Analysis of Variance on the scores of Usage of Educational Mobile Application in relation to stream of Undergraduate Students on Academic Procrastination
Main Effect
A) Usage of Educational Mobile Application
It may be observed from the table 2 that the F-ratio (12.04) for difference between the mean scores of academic procrastination of high, average and low groups of usage of educational mobile application of undergraduate students studying in different science and social-science stream was found to be significant at 0.01 level of confidence. This indicates that different levels of usage of educational mobile application (high, average and low) do affect undergraduate students on the scores of academic procrastination.
In order to probe deeper, F-ratio was followed by t-test. The value of t-ratio for difference in mean scores of academic procrastination of high, average and low groups of undergraduate students with different levels of usage of educational mobile apps has been placed in table 3.

Table 3: t-ratio for Academic Procrastination of undergraduate students studying in different Educational Streams ✔️

Variable	Usage of High Mobile Applications N Mean SD	Usage of Average Mobile Applications N Mean SD	Usage of Low Mobile Application N Mean SD
	216 71.88 12.47	368 76.07 10.12	216 76.56 9.49

Usage of High Mobile Application N Mean SD 216 71.88 12.47	-	4.43**	4.39**
Usage of Average Mobile Application N Mean SD 368 76.07 10.12	4.43**	-	0.57
Usage of Low Mobile Application N Mean SD 216 76.56 9.49	4.39**	0.57	-

Table 3 shows the mean scores for of academic procrastination of undergraduate students with high and average groups of usage of educational mobile application. The t-value (4.43), testing the significance of mean difference on academic procrastination of undergraduate students with high and average level of usage of educational mobile application and the t-value (4.39), testing the significance of mean difference on academic procrastination of undergraduate students with high and low level of usage of non-educational mobile application, in comparison to table value was found to be significant at 0.01 level of confidence; while the t-value (0.57), testing the significance of mean difference on academic procrastination of undergraduate students with high and average level of usage of educational mobile application, in comparison to table value was not found to be significant at 0.05 level of confidence.. Hence the Hypothesis "There exists no significant difference between science and social science streams undergraduate students with different level of usage of educational mobile applications", stands partially rejected. So, it may be inferred that there exists significant difference in academic procrastination of undergraduate students with high and average level usage of educational mobile application; while there exists no significant difference in academic procrastination of undergraduate students with average and low level of usage of educational mobile application.

B) Educational Stream

It may be observed from the table 2 that the F-ratio (17.31) for difference between the mean scores on the scores of academic procrastination of undergraduate students from different streams of study (Science & Social Science) was found to be significant at 0.01 level of confidence. This indicates that stream of study of undergraduate students' do effect on the scores of academic procrastination.

In order to probe deeper, F-ratio was followed by t-test. The value of t-ratio for difference in mean scores of academic procrastination of Science and Social Science groups of undergraduate students with different levels of usage of educational mobile apps has been placed in table 4.

Table 4: t-ratio for Academic Procrastination of undergraduate students studying in different type of courses

Stream	Mean	S.D.	N	t-value
Science	72.76	10.86	446	2.74**
Social Science	75.71	11.57	354	

It may be observed from the table 4 that mean scores for academic procrastination of Undergraduate students studying in different Professional and Non-Professional courses of study. The t-value (2.74), testing the significance of mean difference on academic procrastination of undergraduate students in comparison to table value was found to be significant at 0.01 level of confidence. This indicates that the undergraduate students studying in Science stream scored less on academic procrastination than the undergraduate students studying in Social Science streams. Hence the Hypothesis "There exists no significant difference in academic procrastination of science and social science streams undergraduate students using educational mobile applications". It can be inferred that science stream students are less prone to academic procrastination than the social science stream students. Hence, the results are in tune with the earlier work; students of Science section procrastinate less than the Arts, Social Sciences and Humanities section students (Romero, 2013); students procrastinate more in the field of arts and humanities compared to other academic fields (Nordby et al., 2017).

First Order Interaction effect
It may be observed from the table 2 that the F-ratio (3.56) for interaction between usage of educational mobile application (high, average and low) and Educational Stream (Science & Social Science) in comparison to table value was found significant; as the difference between the mean scores of high, average and low groups of educational mobile apps usage of undergraduate students on academic procrastination was found to be significant at 0.05 level of confidence. This indicates that different levels of usage of educational mobile

application (high, average and low) and Educational Stream (Science & Social Science) do not affect undergraduate students on their scores of academic procrastination.

Hence the Hypothesis, "There exists no significant interaction effect of usage of educational mobile applications and stream of under graduate students studying in different courses on the scores of academic procrastination", stands rejected. It may be concluded that there was significant difference in the mean scores on academic procrastination of under-graduate students due to interaction effect of Usage of Educational Mobile Application and Educational Streams.

2. ANALYSIS OF VARIANCE ON ACADEMIC PROCRASTINATION AND USAGE OF NON-EDUCATIONAL MOBILE APPLICATIONS

The mean and S.D. of undergraduate Students studying in different courses, F-value has been calculated and presented in the Table 5 below:

Table 5: Mean scores on Academic Procrastination of Undergraduate Students studying in different courses of usage of Non-Educational Mobile Application

	Stream	Mean	S. D.	N
Usage of High Non-Educational Mobile Applications	Science	78.86	10.37	82
	Social Science	73.77	11.11	134
	Total	76.22	11.03	216
Usage of Average Non-Educational Mobile Applications	Science	75.28	11.49	179
	Social Science	73.04	10.50	189
	Total	74.25	11.07	368
Usage of Low Non-Educational Mobile Applications	Science	76.97	11.09	11.49
	Social Science	73.42	10.80	85
	Total	75.23	11.08	216

Table 6: Summary of Two-way ANOVA of Under-Graduate Students studying in different courses of Usage of Non-Educational Mobile Applications on Academic Procrastination

Sources of Variation	Sum of Square	df	Mean Sum of Square	F-Ratio
Usage of Non-Educational Mobile Applications(A)	2634.07	2	1317.04	4.19**
Educational Stream (B)	1892.71	1	1892.71	12.18**
Interaction (AXB)	778.51	2	389.25	1.83
Error Term	86835.96	794	109.37	

*Significant at 0.05 level, **Significant at 0.01 level

Analysis of Variance on the scores of Usage of Non-Educational Mobile Applications in relation to stream of Undergraduate Students on Academic Procrastination
Main Effect

A) Usage of Educational Mobile Applications
It may be observed from the table 6 that the F-ratio (4.19) for difference between the mean scores of academic procrastination of high, average and low groups of usages of non-educational mobile applications of undergraduate students was found to be significant at 0.01 level of confidence. This indicates that different levels of non-educational mobile apps usage (high, average and low) do affect undergraduate students on the scores of academic procrastination.
In order to probe deeper, F-ratio was followed by t-test. The value of t-ratio for difference in mean scores of academic procrastination of high, average and low groups of undergraduate students with different levels of usages of non-educational mobile applications has been placed in table 7.

Table 7: t-ratio for Academic Procrastination of undergraduate students with different levels of Usage of Non-educational Mobile Applications

Variable	High Usage of Mobile Applications N Mean SD 216 71.88 12.47	Usage of Average Mobile Applications N Mean SD 368 76.07 10.12	Usage of Low Mobile Applications N Mean SD 216 76.56 9.49
Usage of High Mobile Applications N Mean SD 216 71.88 12.47	-	4.34**	4.79**
Usage of Average Mobile Applications N Mean SD 368 76.07 10.12	4.34**	-	0.57

	4.79**	0.57	-
Usage of Low Mobile Applications N Mean SD 216 76.56 9.49			

Table 7 shows the mean scores for of academic procrastination of undergraduate students with high and average groups of usages of non-educational mobile applications. The t-value (4.34), testing the significance of mean difference on academic procrastination of undergraduate students with high and average level and the t-value (4.79), testing the significance of mean difference on academic procrastination of undergraduate students with high and low level of usages of non-educational mobile applications, in comparison to table value was found to be significant at 0.01 level of confidence; while t-value (0.57), testing the significance of mean difference on academic procrastination of undergraduate students with high and average level of usages of non-educational mobile applications, in comparison to table value was not found to be significant at 0.05 level of confidence. Hence the Hypothesis "There exists no significant difference between science and social science streams undergraduate students with different level of usage of non-educational mobile applications", stands partially rejected. Therefore, it may be inferred that there exists significant difference in academic procrastination of undergraduate students with high and average level and high and low level of usages of non-educational mobile applications; while no significant difference existed in academic procrastination of undergraduate students with average and low level of usages of non-educational mobile applications. The results are supported by the earlier studies that academic procrastination is related to high usages of non-educational mobile applications Usage; Şahin (2014) reported a relationship between the level of Facebook usage and academic procrastination among students. On the contrary, in a similar study, Odacı (2011) mentioned that data showed no significant relation between academic procrastination and problematic Internet use.

B) Educational Stream
It may be observed from the table 6 that the F-ratio (12.18) for difference between the mean scores on the scores of self-efficacy of Undergraduate students from different streams of study (Science and Social Science) was not found to be significant at 0.05 level of confidence. This indicates that stream of study of Undergraduate students' do effect on the scores of academic procrastination.
In order to probe deeper, F-ratio was followed by t-test. The value of t-ratio for difference in mean scores of academic procrastination of high, average and low groups of Undergraduate

students with different levels of usages of non-educational mobile applications has been placed in table 8.

Table 8: t-ratio for Academic Procrastination of undergraduate students studying in different type of courses using Non-Educational Mobile Applications

Stream	Mean	S.D.	N	t-value
Science	76.97	11.09	446	3.37**
Social Science	73.42	10.80	354	

It may be observed from the table 8 that mean scores for academic procrastination of Undergraduate students studying in different Professional and Non-Professional courses of study. The t-value (3.37), testing the significance of mean difference on academic procrastination of Undergraduate students in comparison to table value was found to be significant at 0.01 level of confidence. Hence the Hypothesis "There exists no significant difference in academic procrastination of science and social science streams undergraduate students using educational mobile applications", stands rejected. This indicates that the undergraduate students studying in Science stream scored more on academic procrastination than the Undergraduate students studying in Social Science streams.

First Order Interaction effect
It may be observed from the table 6 that the F-ratio (1.83) for interaction between Non-Educational Mobile Apps Usage (high, average and low) and Educational Stream (Science and Social Science) in comparison to table value was found significant; as the difference between the mean scores of high, average and low groups of usages of non-educational mobile applications of Undergraduate students on academic procrastination was not found to be significant at 0.05 level of confidence. This indicates that different levels of usages of non-educational mobile applications (high, average and low) and Educational Stream (science and social science) do not affect undergraduate students on their scores of academic procrastination.

Hence the Hypothesis, 'There is no significant interaction effect of usage of non-educational mobile applications and stream of under graduate students studying in different courses on the scores of Academic Procrastination', stands rejected. It may be concluded that there was significant difference in the mean scores on academic procrastination of under-graduate students due to interaction effect of usages of educational mobile applications and Educational Streams.

Findings:
1. A significant difference in academic procrastination among undergraduate students studying in different science and social-science streams was found with high, average and

high and low usage of educational mobile application; while no difference was found between average and low levels of usage.

2. A significant difference in academic procrastination was found among the undergraduate students studying in Science and Social Science streams stream as science stream students were less prone to academic procrastination than the Social Science stream students.

3. A significant interactional effect on the mean scores of academic procrastination of under-graduate students due to interaction effect of usage of educational mobile application and Educational Streams was observed.

4. A significant difference in academic procrastination was found among undergraduate students with high and average as well as with high and low levels of usage of non-educational mobile application; while no difference in academic procrastination was found among undergraduate students with average and low levels of usage of non-educational mobile application.

5. A significant difference in academic procrastination was found among the undergraduate students studying in Science and Social Science streams stream as science stream students were less prone to academic procrastination than the Social Science stream students.

6. No significant difference in the mean scores on academic procrastination of under-graduate students due to interaction effect of usage of non-educational mobile application and Educational Streams was observed.

Educational Implications:

1. The students with low and average level of usage of educational mobile application studying in different Science and Social Science streams of professional and non-professional courses and students with low and average level of usage of educational mobile application studying in different social science streams should be identified and need to be made aware about and improve the habits of healthy usage of mobile applications. The identified should be made aware

- To Reversing the triggers
- Working within their resistance level
- Calculate the costs of procrastination
- Disconnect from technology.

2.   Procrastination may be avoided or reduced in a variety of ways like

- Balance their time
- change their environment
- Balance their time
- Break down their work into manageable chunks
- Hang out with people who inspire them to take action, and set clear deadlines.
- Find someone who has already achieved the goal.

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