



RESEARCH PAPER

GRIT: A Non-Cognitive Attribute of University Students

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ABSTRACT

Individuals with the passion and perseverance to work and study extensively despite obstacles and hardship to attain a set of objectives are more likely to succeed than others who lack comparable characteristics. Grit is a personality attribute that predicts success and performance in higher education. The purpose of this study was to examine university students' grit and demographic differences. The study was quantitative, and data from 1,230 randomly chosen university respondents were gathered using a survey method. Duckworth's Grit scale was used to assess the degree of grit and its demographic variables. Descriptive statistics (frequencies, percentages, means, and Standard Deviation) and inferential statistics (independent sample-t-test, one-way ANOVA, and Post Hoc Tukey) were used to analyze the data and draw conclusions for the study. Findings demonstrated that grit level was medium and female students were more gritty than male students. Commerce students have more power of grit than science and arts students. Similarly, MPhil students who were more experienced had more control of grit than their juniors.

KEYWORDS Consistency of Interest, Grit, Perseverance of Effort, University Students

Introduction

Educational expectations have shifted due to social, economic, and technical advancements during the previous several decades. It is necessary to be prepared with a variety of talents to react quickly to real needs. Therefore, educational institutions must provide their students with opportunities to attain such skills (Deregozu & Hatipolu, 2018). Education and social science researchers have recently realised that non-cognitive factors are more important to educational achievement and success than cognitive factors (Duckworth et al., 2007; Duckworth & Quinn, 2009; Robertson- Kraft & Duckworth, 2014; Stankov & Lee, 2014; Strayhorn, 2014). Non-cognitive skills, such as motivation, perseverance, and self-control, are those attitudes, behaviours, and approaches that promote success in educational institutions and the workplace (Gutman & Schoon, 2013). According to Rosen et al. (2010), there are seven different types of fundamental non-cognitive skills: grit, effort, motivation, self-regulated learning, self-efficiency, academic self-concept, antisocial and prosocial behaviour, and self-efficacy. Tests or teacher evaluations are typically used to measure them.

Many researchers have investigated non-cognitive factors in university student success, including the relationship between student motivation (Cardona, 2013; Mason, 2012), student self-regulation (Kelley, & Salisbury-Glennon, 2016), learner autonomy (Lowe, 2009; Breeze, 2002), positive self-concept (Sedlacek, 2004), departmental and faculty factors, in addition to best practises for faculty and institutions (Di Pierro, 2007; De Valero, 2001; Gardner, 2009), and positive psychology constructs, like persistence (Ivankova & Stick, 2007) and grit (Cross, 2013). Grit is a non-cognitive attribute that requires long-term efforts to achieve a learner's desired goal and is required for successfully completing difficult tasks. Grit is defined as the drive and determination to achieve long-term goals (Duckworth et al. 2007). Grit is comprised of two elements persistence of effort

and consistency of interest (Duckworth & Quinn, 2009). Grit, which is perseverance and passion for long-term goals, entails working arduously on challenges and maintaining effort and interest over time in spite of failure, adversity, and progress plateaus (Duckworth et al., 2007). Grit entails working hard toward difficult goals and maintaining effort and interest over time, despite failure, setbacks, and plateaus in progress (Huescar et al., 2020).

Additionally, the traditional methods of teaching have been altered by the availability of knowledge through information technology, so it is now even more crucial to offer guidance and support to students in order to aid their learning (Gheith & Aljaberi, 2017). Educating our pupils non-cognitive skills is imperative to prepare them for future problems. Students' academic performance improves as a result of these skills, as does their ability to deal with setbacks and stress (Alhadabi & Karpinski, 2020). Grit is a crucial non-cognitive skill for promoting positive student development (Tang et al., 2019). Considering the importance of such skills, researchers tried to determine the grit level in the universities of Punjab, Pakistan.

The study has been structured in the following sections; the detailed literature review is given in section 2, which discusses grit, factors of grit, and related studies of grit. The research design and sampling, data collection method is given in section 3, whereas results and finding are given in section 4, along with the data presented in tables and graphs. Finally, the conclusion is presented in the last section.

Literature Review

Students' Grit

Grit is a person's long-term persistence and passion for their goals (Duckworth et al. 2007). Grit is defined by two main characteristics: perseverance in effort and consistency in interest (Duckworth et al., 2007). It refers to perseverance and enthusiasm for long-term goals, and it was proposed as a non-cognitive characteristic of people who achieve success in their respective fields (Duckworth et al., 2007). Students with high grit put in consistent effort and do not abandon a goal even when there is no positive feedback (Duckworth and Quinn, 2009; Millward et al., 2016). It has been found to be a learner trait variable that affects learning outcomes in a positive way (Wolters & Hussain, 2015). Learners with a high level of grit generally have more self-control, are less likely to give up learning, and thus achieve higher academic achievement (Duckworth et al., 2007; Strayhorn, 2014).

Grit has been conceptualised as a constant trait or disposition of the person that, like traditional personality traits, influences his or her attitudes and behaviour in a variety of contexts (Duckworth and Quinn 2009; Kleiman et al., 2013; Reed et al., 2013). Grit is portrayed in educational contexts as a potentially significant influence on outcomes such as student engagement, achievement level, retention, and likelihood of graduation (Duckworth and Quinn 2009; Maddi et al. 2012; Strayhorn 2013). Grit has been linked to self-control (Duckworth & Gross, 2014), and is the ability to postpone self-gratification (Stokas, 2015). Grit has also been linked to hope, self-efficacy (Dixson et al., 2016), growth mindset (Perkins-Gough, 2013; Dockterman & Blackwell, 2014) resilience (Perkins-Gough, 2013), and commitment (McGeown et al., 2016).

Theoretical Background

The study of grit and the capacity to persevere through difficult circumstances was guided by self-determination theory, which offered a theory for what motivates people. Grit is defined as persistence and a strong desire to achieve long-term goals (Duckworth et al., 2007). One can use the concept of autonomous motivation to investigate what led people to pursue a goal, and one can use the concept of controlled motivation to investigate the factors that come from the outside that motivate people to pursue those goals. Both intrinsic and extrinsic motivation can have an effect on an individual's enthusiasm, perseverance, and

passion for accomplishing their goals. Motivation, perseverance, and passion are also associated with grit (Duckworth et al., 2007). Jin and Kim (2017) connected grit to self-determination theory as well.

Factors of Grit

The Grit Scale was developed by Duckworth et al. (2007) because grit is a relatively new trait that requires reliable units of measurement. This tool contained self-administered multiple-item questionnaires to assess an individual's capacity to overcome obstacles (Bazelais, Lemay, & Doleck, 2016). The questions assessed individuals' personal perspectives and behaviours when confronted with difficult challenges and achieving goals (Bazelais et al., 2016).

Duckworth et al. (2007) discovered a two-factor structure for the original 12-item self-report grit (Grit-O) measure. Grit is defined by two characteristics: consistency in interest and perseverance in effort. Each factor is made up of six items.

Related studies of students' Grit

Source	Year	Edu. Level	Variables	Methodology	Sample	Findings	Country
Akin and Arslan (2014)	2014	University	Grit, Achievement	Cross-sectional survey	509	Grit was positively related to learning-approach orientations and negatively to learning-avoidance, performance-approach	Turkey
Al-Mutawah and Fateel (2018)	2018	School	Grit and attitudes	Quantitative	646 students	The mathematical achievement was significantly and positively correlated with grit, but not a scientific achievement.	Bahrain
Arouty (2015)	2015	University	Grit, Resilience, Academic success	Quantitative	235	Grit is predictive of freshman retention and a compensatory trait for students with low SAT scores.	USA
Banupriya and Rajan (2019)	2019	School	Grit, Academic Achievement	Quantitative	200 students	High school students demonstrated no gender or educational differences in grit.	India
Batres (2011)	2011	School	Grit, Attendance	GPA, Quantitative	97	There was an association between students attendance and grit	USA
Black (2014)	2014	University	Grit, influence, achievement	Parent Quantitative	97	Grit did, however, moderate the relationship between attachment and GPA.	USA
Bowman et al., (2015)	2015	University	Grit, Outcomes	Quantitative	417	Both of the grit subscales were linked to a lower likelihood of changing majors, but only the Grit-CI subscale was linked to a lower likelihood of changing careers.	USA
Chang (2014)	2014	College	Grit, Academic Performance	Quantitative	2035	Gender, SAT scores, race, and the perseverance subscale score of grit measured by the Grit-S were all found to be significant predictors of first-year GPA in the study.	Taiwan

Duckworth et al. (2007)	2007	University	Grit: Perseverance, Passion	Quantitative	1,545 students	The study discovered that adults with higher levels of education had greater grit than adults with lower levels of education of the same age.	USA
Duckworth et al. (2007)	2007	University	Grit and academic achievement	Quantitative	139 students	Researchers found that students with more perseverance performed better than those with less perseverance.	USA
Duckworth et al. (2007)	2007	University	Grit, Self-control	Quantitative	1,218 students	The results showed that in the sample, grit was a better predictor of completion rates for the demanding summer programme than self-control.	USA
Hansen (2016)	2016	School	Grit, Resilience	Mindset, Mixed-method study	1527+08	Qualitative and quantitative data showed that schools may be heavens for adopting techniques and initiatives to help at-risk pupils overcome harsh environment.	USA
Hogan (2013)	2013	Law firm	Grit, Female Success	Qualitative and Quantitative	200 Lawyers	Finally, this study suggests that grit and a growth mindset may be keys to success for women lawyers.	USA
Hodge et al. (2018)	2018	University	Grit, students' engagement, academic outcomes	Quantitative	395 Students	There was a correlation between grit, student engagement, and outcome.	Australia
Hwang et al. (2018)	2018	University	Grit, conscientiousness, self-control, school success	Quantitative	509 students	Grit has been linked to traits such as conscientiousness and self-control.	Korea
Joseph (2009)	2009	University	Grit, Performance	Quantitative	57	The results showed that neither grit nor mental toughness are reliable predictors of athletic performance.	USA
Lin and Chang (2017)	2017	School	Grit, Academic Performance, Satisfaction	Quantitative	1504	Grittier students reported higher academic performance and greater academic satisfaction.	Taiwan
Meyer et al. (2017)	2017	World Cup, Olympic, and/or Professional League athletes	Grit, Performance	Quantitative	305	The study's conclusions cast doubt on the underlying theories and subsequent measurement of the grit construct in sport psychology practise.	USA
Singh and Jha (2008)	2008	University	Grit, Happiness, Life Satisfaction	Quantitative	254 students	The results showed a positive link between Grit, Positive Affect, Happiness, and Life Satisfaction.	India
Strayhorn (2014)	2014	College	Grit, Success	Academic Quantitative	140 students	Grit was found to be positively related to college grades in Black males.	USA
Wolters and Hussain (2015)	2015	University	Grit, Self-regulated learning and Academic achievement	Quantitative	213	All SRL indicators were predicted by grit-PE. Only the last two facets of SRL were linked to Grit-Cl.	USA

Grit is currently viewed as a personality attribute (Duckworth et al., 2007). Duckworth and her colleagues investigated it while studying achievement behavior (Duckworth et al., 2007). Akin and Arslan (2014) studied the relationships between achievement goal orientations and grit. Al-Mutawah and Fateel (2018) studied how Grit and Attitude influence students' achievement. Arouty (2015) studied the relationships between grit and retention in first-year college students. Banupriya and Rajan (2019) researched the relationship between grit and academic achievement. Batres (2011) studied the relationships between grit and class attendance. Black (2014) and Bowman et al., 2015 studied the relationships between grit and school and college GPAs. Chang (2014) investigated the relationship between grit and performance. Duckworth et al. (2007) collected self-reported grit-scale data using a noncommercial public website. Duckworth et al. (2007) investigated the relationship between grit and academic achievement in the United States. Hansen (2016) explores the relationship between grit, mindset, and graduation rates. Hodge et al. (2017) investigated the role of grit in the engagement and academic outcomes of university students. Hogan (2013) studied the relationship between grit and women lawyers achieving cooperation. Hwang et al. (2018) investigated the structural relationship between female students' age, conscientiousness, self-control, and school success. Joseph (2009) explored the relationship between grit and sports performance. Lin and chang (2017) also conducted a relationship between grit and performance. Meyer et al. (2017) conducted a study on the relationship between grit and soccer teams for women. Singh and Jha (2008) conducted a study to investigate the relationship between life satisfaction, happiness, positive and negative affect, and life satisfaction. Strayhorn (2014) investigated whether grit could account for the academic success of black male students. Wolters and Hussain (2015) studied on relationship between grit, self-regulated learning, and academic achievement.

Material and Methods

Research design and Sampling

This study was descriptive, and a survey method was employed to collect the data required to analyze the problems discussed in this research study. A multi-stage simple random sampling method was used in the present study to select the population (Figure 1). Punjab province was divided geographically into three zones: East zone, North zone, and South zone (Shaheen, 2013; Bank, 2015). The required sample was selected at each stage given below:

- In the first stage, a list of all general-type public universities was taken from the Higher Education Commission (HEC) website.
- The researchers selected six universities (two from each zone) in the second stage by following a simple random sampling technique. This way, the rationale of the universities chosen was to provide equal representation for all students studying in all universities of the province of Punjab.
- The researchers contacted the concerned personnel of respective universities to get the students' credentials, i.e., Name, Gender, Educational Level, Faculty, and email, to share the questionnaires.

Data Collection Instrument

The Grit scale (S-G) developed by Duckworth et al. (2007) was adopted to measure the level of students' grit. The questionnaire consisted of two factors: consistency of interest and perseverance of effort having 12 items. The scale's response categories ranged from 1=Not at all like to me to, 5= Very much like to me on a five-point Likert scale.

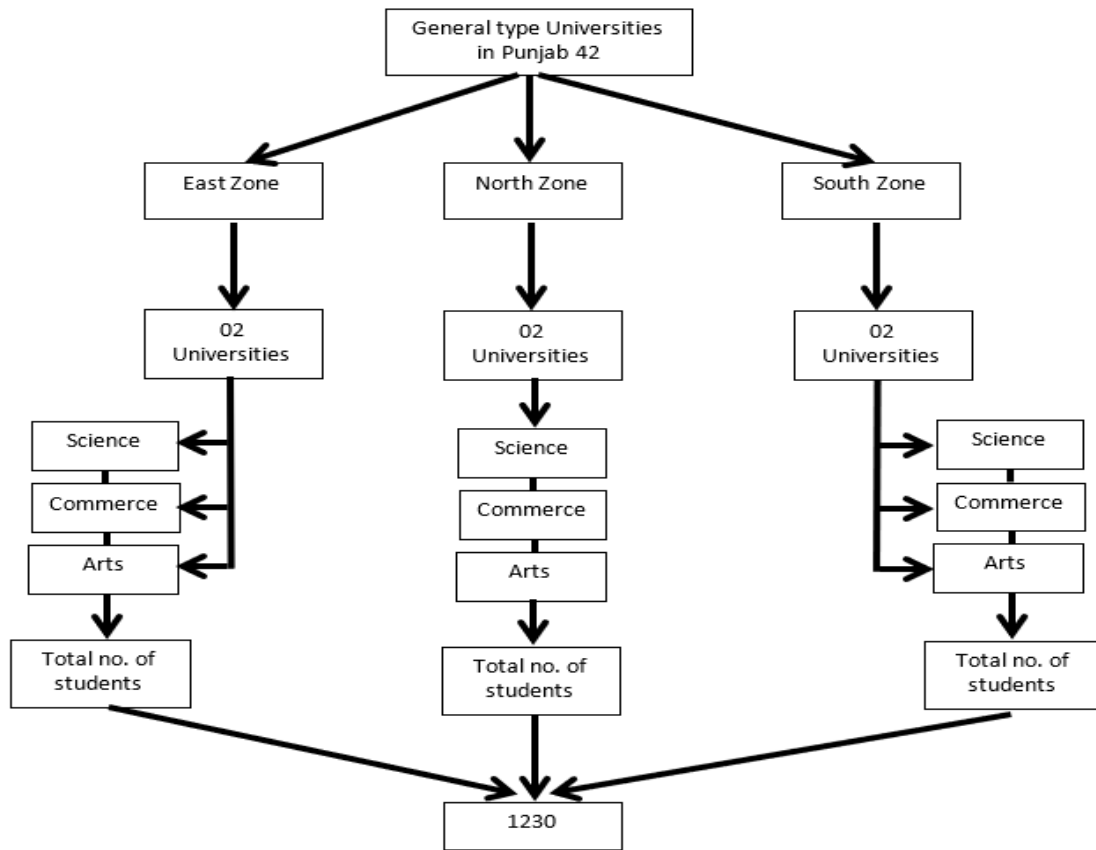


Figure 1: Sampling Flowchart

Pilot Testing

The instrument utilized in this study was piloted tested to confirm validity and reliability. Five experts validated it. The instrument was tested on a sample of 100 university students who were not part of the final sample. Cronbach's alpha was calculated to confirm the reliability, which was .81.

Data Collection

The questionnaire was uploaded in Google form to collect the data online because face-to-face data collection from the students was impossible due to the COVID-19 pandemic and the closure of the universities. The questionnaire link in Google Form was shared with the students through email. As the students filled in the questionnaire, the responses were recorded in the Google form and exported into the Microsoft Excel file to analyze the data accordingly. The researchers finally sent an email of thanks to all the participants who solved the questionnaire.

Results and Discussion

Table I
Descriptive Statistics of Grit Scale

Scale	N	MPI	M	SD	Range	Skew.	Kurt.	Level
Consistency of Interest	1230	3.22	19.31	5.27	6-30	-.29	-.13	Medium
Preservance of Effort	1230	3.74	22.41	4.40	6-30	-.17	-.49	Medium
Grit (Overall)	1230	3.48	41.72	7.55	12-60	.08	.16	Medium

The above table (1) mentioned that perseverance of effort has the highest mean value (M=3.74), whereas consistency of interest (M=3.22) has the low mean value. The

overall mean score of the Grit level of university Students is ($M=3.48$), which is at the center of scale mark (3) and scale mark (4). The overall level of Grit scores is medium, along with all its sub-factors.

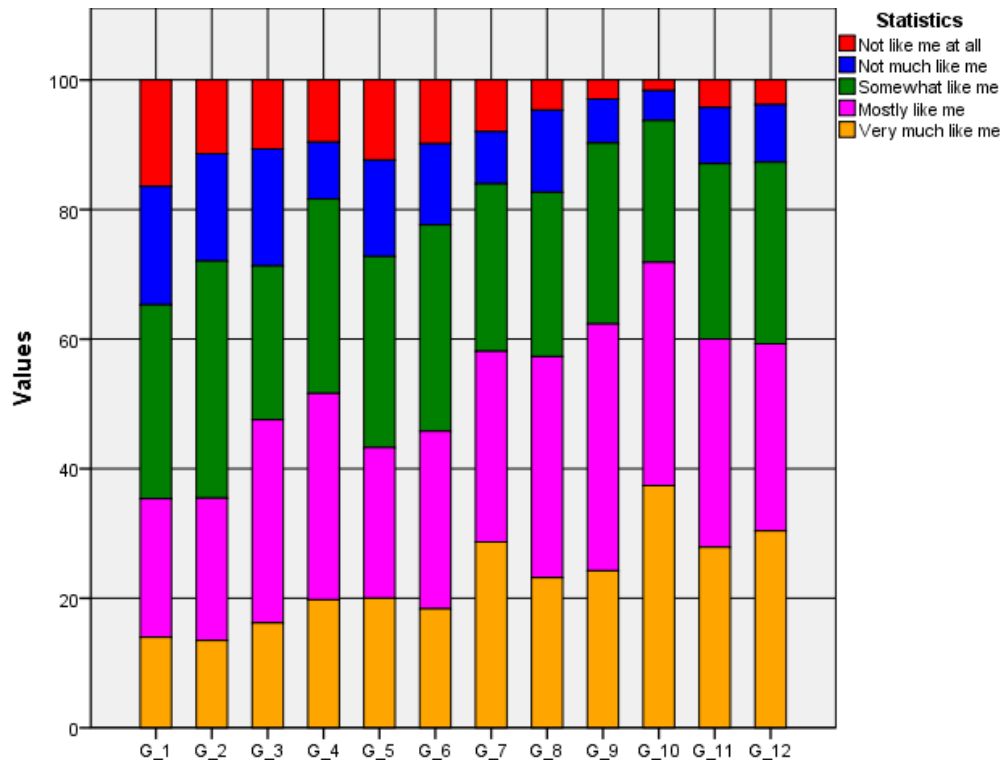


Figure presents students' responses to G-S on a five-point Likert scale. The answers ranged from *Not at all Like* to *Very much like to me*.

Table 2
Difference in Students Grit Scores based on Gender (Independent Samples t-test)

Scale	Gender	M	SD	df	t	P
Consistency of Interests	Male	18.69	5.61	1128	2.74	.006
	Female	19.58	5.09			
Perseverance of Effort	Male	21.91	4.61	665.71	.012	.009
	Female	22.62	4.28			
Grit (Total)	Male	40.60	7.58	1228	3.42	.001
	Female	42.20	7.50			

Table reveals that the independent samples t-test was utilized to compare the mean score of students' grit by gender. Results report that Female students' perception regarding the factor consistency of interest ($M=18.58, SD=5.09$) was significantly different than male students ($M=18.69, SD=5.61$). Similarly, the Scale Perseverance of Effort results also revealed that female students' findings ($M=22.62, SD=4.28$) were not significantly different from male students ($M=21.91, SD=4.61$). The total findings of the study showed that mean scores ($M=42.20$) of female students are high compared to the male ($M=40.60$) students about grit score. The study concluded a significant difference in university students' perceptions of students' grit at a $p \leq 0.05$ level of significance regarding gender. It is concluded that female students focused more on students' grit than male students at the university level.

Table 3
Qualification-wise Mean and Stand Deviation Scores of Grit

Scales	Gander	N	M	SD
Consistency in Interest	Science	215	18.36	5.25
	Arts	903	19.34	5.19
	Commerce	112	20.90	5.58
Perseverance of Effort	Science	215	22.33	4.43
	Arts	903	22.27	4.34
	Commerce	112	23.63	4.53
Grit (Total)	Science	215	40.68	7.95
	Arts	903	41.62	7.39
	Commerce	112	44.54	7.49

Table indicates the mean score and standard deviation of students' grit qualification-wise. Students of commerce have the mean score ($M=20.90$, $SD=5.58$), followed by Arts students ($M=19.34$, $SD=5.19$) and Science students ($M=18.36$, $SD=5.25$) on a consistency scale. Similarly, students of commerce have the mean score ($M=23.63$, $SD=4.53$), followed by Science students ($M=22.33$, $SD=4.43$) and Arts students ($M=22.27$, $SD=4.34$) on perseverance scale. The overall mean value of commerce students ($M=44.54$, $SD=7.49$), followed by Arts students ($M=41.62$, $SD=7.39$) and Science students ($M=40.68$, $SD=7.95$). Results show that commerce students focused more on students' grit than other groups.

Table 4
Difference in Students Grit Scores based on Faculty

Subscales	Source	SS	df	MS	F	P
Consistency in Interest	Between Groups	479.51	2	239.76	8.75	.000
	Within Groups	33616.61	1227	27.40		
Perseverance of Effort	Between Groups	186.38	2	93.19	4.87	.008
	Within Groups	23449.18	1227	19.15		
Grit (Total)	Between Groups	1128.87	2	564.44	10.03	.000
	Within Groups	69018.23	1227	56.25		

A one-way ANOVA calculated the faculty-wise difference of university students' perceptions about grit (sub-scales) as given in IV. The study's findings concluded it were significant differences in university learners' opinions about grit (sub-scales) at a $p \leq 0.05$ level of significance. Overall results also indicate that university students have different opinions about grit at a $p \leq 0.05$ level of significance.

Table 5
Difference in grit based on Faculty (Post Hoc)

Dependent Variable	Faculty	Faculty	Mean Difference	p
Consistency in Interest	Arts	Science	.984	.036
	Arts	Commerce	-1.56	.008
	Science	Commerce	-2.54	.000
Perseverance of Effort	Arts	Commerce	-1.36	.006
	Science	Commerce	-1.31	.028
Grit (Total)	Arts	Commerce	-2.92	.000
	Science	Commerce	.751	.000

A post hoc test (Tukey) was used to conclude the difference in university students' perceptions of grit within the groups, as displayed in the above table. Study results display that students in the Consistency Scale belonging to the Faculty of Arts ($M=19.34$, $SD=5.19$) were substantially different from the students of the Faculty of Science ($M=18.36$, $SD=5.25$) and Faculty of Commerce students ($M=20.90$, $SD=5.58$). Furthermore, Science students

($M=18.36$, $SD=5.25$) from Commerce Faculty Students. Similarly, in the Perseverance Scale, students belonging to the Faculty of Arts ($M=22.27$, $SD= 4.34$) were significantly different from the students belonging to the Faculty of commerce ($M=23.63$, $SD=4.53$) and Science group ($M= 40.68$, $SD=7.95$) from the Faculty of Commerce. Overall results show that students belonging to the Faculty of commerce ($M=44.54$, $SD=7.49$) were significantly different from those of the Faculty of Arts ($M= 41.62$, $SD= 7.39$) and science ($M= 40.68$, $SD=7.95$) at $p \leq 0.05$ level significance. The remaining groups did not have any significance on the scale.

Table 6
Qualification-wise Mean and Stand Deviation Scores of Students' Grit

Scales	Qualification	N	M	SD
Consistency in Interest	BS	790	19.46	5.00
	MA/MSc	226	19.19	5.57
	MPhil	214	18.89	5.86
Perseverance of Effort	BS	790	21.96	4.44
	MA/MSc	226	22.00	4.38
	MPhil	214	24.48	3.56
Grit (Total)	BS	790	41.42	7.59
	MA/MSc	226	41.19	7.23
	MPhil	214	43.37	7.57

The above table shows the qualification-wise Mean and Stand Deviation Scores of Students' Grit. Consistency scale, in which BS Students has mean score ($M=19.46$, $SD=5.00$), followed by MA/MSc students ($M=19.19$, $SD=5.57$), and MPhil students ($M=18.89$, $SD=5.89$). Similarly in persistence scale MPhil students has the mean value ($M=24.48$, $SD=3.56$), followed by BS students ($M=21.96$, $SD=4.44$), and MA/MSc students ($M=22.00$, $SD=4.38$). The overall mean value of MPhil students has a mean value ($M=43.37$, $SD=7.57$), followed by BS students ($M=41.42$, $SD=7.59$) and MA/MSc students ($M=41.19$, $SD=7.23$).

Table 7
Difference in Learner Autonomy Scores based on Qualification

Subscales	Source	SS	df	MS	F	P
Consistency in Interest	Between Groups	58.48	2	29.24	1.054	.35
	Within Groups	34037.63	1227	27.74		
Perseverance of Effort	Between Groups	1116.52	2	558.26	30.36	.000
	Within Groups	22564.04	1227	18.39		
Grit (Total)	Between Groups	719.26	2	359.63	6.36	.002
	Within Groups	69427.84	1227	56.58		

Qualification-wise difference of university students' perceptions of grit (sub-scales) and overall students' grit was calculated using one-way ANOVA in Table VII. The study's findings concluded that there were no statistical significance in university students' perceptions about the consistency of in interest. In contrast, there were significantly different in university students' perceptions of the perseverance of effort at a $p \leq 0.05$ In contrast, there were significantly different in university students' perceptions of the perseverance of effort at a $p \leq 0.05$ significant level. The overall study's finding indicated significant differences in university students' perceptions about grit at a $p \leq 0.05$ significant level. Therefore, it is concluded that university students have different opinions regarding grit at a $p \leq 0.05$ significant level.

Table 8
Difference in Students Grit based on Qualification (Post Hoc)

Dependent Variable	Qualification	Qualification	Mean Difference	<i>p</i>
Perseverance of Effort	BS	MPhil	-2.52	.000
	MA/MSc	MPhil	-2.47	.000
Grit (Total)	BS	MPhil	-1.95	.002
	MA/MSc	MPhil	-2.18	.007

Table VIII presents the data of Post Hoc evaluation; this was used to assess whether groups differed considerably from one another. Findings directed that the mean score for BS students ($M=21.96$, $SD=5.00$) was significantly different from MPhil students ($M = 24.48$, $SD = 3.56$) and MA/MSc Students ($M=22.00$, $SD=4.38$) and MPhil students in perseverance scale. Overall MPhil students ($M=43.37$, $SD= 7.57$), from BS ($M=41.42$, $SD=7.59$) and MA/MSc students ($M=41.19$, $SD=7.23$) at a $p \leq 0.05$ significance level. On the scale, there was no distinction between the remaining groups.

Level of Students 'Grit as perceived by students. The mean score of Students 'Grit and its sub-factors (Consistency of interest and Perseverance of effort) was ($M=3.48$), so the grit level of university students was found to be medium. Tabassum and Akhter (2020) studied in Pakistan and found that financial support for higher education is almost nil. This increases the stress among students to complete education on time while managing their familial responsibilities. The cognitive stress thus created affects the academic performance outcome. Students from families with a high monthly income may perform well. Still, students from low-income families and those with a high unemployment rate must work to support their studies and living or day-to-day expenses, all of which contribute to their declining academic performance (Atif, 2021; Sadiku, 2019). In a similar study, Aziz et al. (2014) found widespread dissatisfaction among Pakistani students with their educational system. They lacked the necessary skills for today's labor market, and many expressed frustrations at their inability to obtain the essential skills. Those who were qualified had difficulty finding good jobs while fighting discrimination and corruption. Azhar and Manzoor (2014) discovered that assessing long-term outcomes was difficult in a study on public administration education in Pakistan. Long-term outcomes are difficult to predict, making the task more difficult in a South Asian country with a politicized bureaucracy and centralized public administration authority. Study participants expressed a solid wish to design such structures and schemes which boost them to put the information, awareness, and talents they have gained while pursuing their Master of Public Administration degrees to use in their professional lives.

Differences in Students 'Grit on the basis of demographic variables. The study's findings showed that female students' mean scores ($M=42.20$) are high compared to the male ($M=40.60$) students' grit scores. So the grit level of female students was higher than male students. These results support earlier researchers who reported that females have higher grit with respect to males (Rojas et al., 2012; Jaeger et al., 2010; Sigmundsson et al., 2021). At the same time, Batres (2011) declared no gender difference in grit scores. The findings also revealed that higher-educated students have high mean value than less-educated students. MPhil students have a higher mean value than BS/MA students. These findings corroborate those of Duckworth et al. (2007), who found that highly-educated individuals exhibited more grit compared to lower-educated adults of the same age.

Conclusion

The purpose of the study was to find out the status of students' grit, gender, qualification, and discipline-wise difference between the students at the university level. It was concluded that the grit level of students was of medium level. In gender base differences, female students were grittier than their male counterparts. Moreover, old-age adults work

more freely than younger. According to qualification differences, MPhil students had more grit than M.A./MSc and B.S students.

Recommendations

- 1- This study was limited to universities in the public sector in Punjab, and the findings cannot be generalized to other country regions. The researchers suggested that this study be conducted in different demographics and geographic locations.
- 2- This study was conducted at public universities. It may also be conducted at universities in the private sector.
- 3- It is possible to compare perceptions of students' grit between public and private universities.

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