

Defining And Measuring Academic Performance of Hei Students- A Critical Review

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Abstract

The significance accorded to the amorphous concept of Academic Performance of students is immense, owing to the mere reason that better performances academically set the prospect for the better future of any nation. Likewise, understanding the integrities of the concept holds a great connotation. The current paper aims to present a review of the various definitions of “academic performance” along with the factors perceived to have an effect on the academic performance of students belonging to Higher Education Institutions (HEIs). Additionally, an effort has also been made to gain an insight into the reliability of “Grade Point Average” (GPA) as a method for measuring academic performance.

Keywords

Academic Performance, Higher Education Institutions, Measurement, Grade Point Average (GPA)

Introduction

The concept of Academic performance is believed to possess an amorphous nature, since it broadly incorporates various factors ranging from attaining a professional degree to the development of students in the moral sense (York, Gibson & Rankin, 2015). The perspective oriented nature of “academic performance” further creates hindrance in giving an exhaustive definition of the term. For some entities, completing courses and gaining knowledge and skills may be the meaning of academic performance. Whereas, for some others, having the abilities to secure a progressive career would be the version. On the whole, securing and inculcating a meaningful change (psychological, affective, cognitive as well as behavioural) in the students, is the ultimate goal of the education system across the world. This fact finds its explanation in the Astin’s Model of change, which holds that the outcome pertaining to

students, i.e., learning is a function of the personal characteristics of students- the “INPUT” as well as the “ENVIRONMENT” which they confront while attending an institution for education.

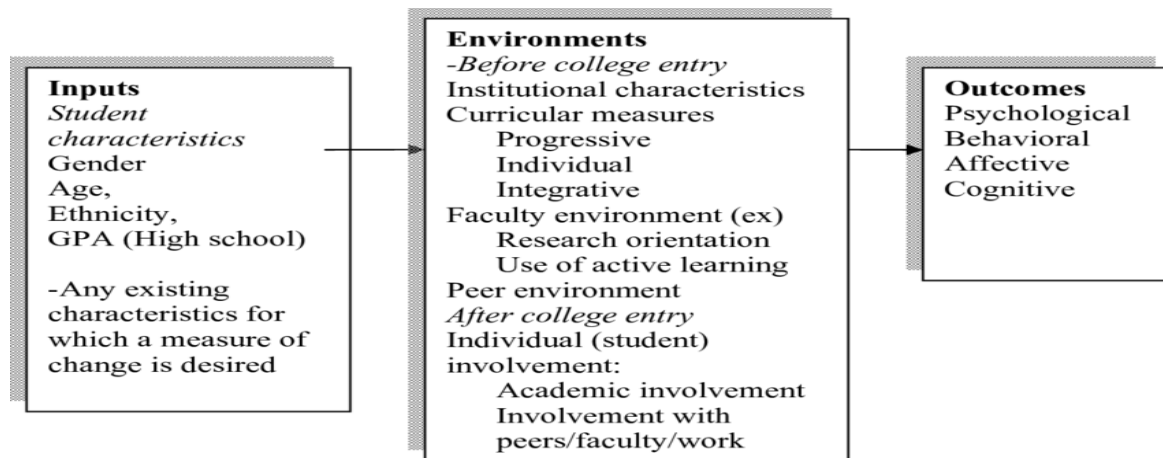


Figure 1. Astin’s Model of Change

(Source: https://www.researchgate.net/figure/Astins-Theory-of-Involvement-Inputs-Environments-Outcomes-Model-Astin-1994_fig1_41663510)

As such, the concept of Academic Performance can be considered as a reflection of the outcome of education.

Concept of Academic Performance

The academic performance of students is the key feature (Rono, Onderi & Owino, 2014) and one of the important goals (Narad and Abdullah, 2016) of education, which can be defined as the knowledge gained by the student which is assessed by marks by a teacher and/or educational goals set by students and teachers to be achieved over a specific period of time. The attainment of academic excellence of students through making them portray better academic performance is the foremost motive of academic institutions (Adeyemo, 2001). Further, academic performance is something immensely significant for anyone who has a concern with education (Osiki, 2001). In fact, academic performance can be understood as the nucleus, around which a whole lot of significant components of education system revolve, which is why the academic performance of students, specifically belonging to Higher Education Institutions (HEIs), has been the area of interest among researchers, parents, policy framers and planners. Since a sound academic performance is considered as a pre-requisite for securing good jobs, a better career and subsequently a quality life, significance of the students’ academic performance is immense. Although it may seem to be a simple outcome of education, but the impact of academic performance of students in any nation is multi-faceted. Narad and Abdullah (2016) mentioned in their research, that at the basic level, the success or failure of any academic institution depends largely upon the academic performance of its students. They also reiterated the general belief that good academic performance signals better career prospects and thus a secure future. The Academic Performance of students is immensely significant as the economic as well as the social development of any country are both attributable to the academic performance of the students. The better the students perform academically, the better are the prospects of the development of a fine manpower, who will contribute to the economic and social development of the nation (Ali et.al, 2009). Students performing better than the expectations and norms set by the society are mostly expected to contribute to the growth, development and sustainability of the society (Akinleke, 2017). Singh, Malik & Singh (2016) presented

a straight and significant connect between academic performance of students and the socio-economic development of a country, because acquisition of relevant knowledge as well as skill development become evident through students' academic performance (Farooq, Chaudhry, Shafiq and Berhanu, 2011). This accords a great reason to educators granting the highest priority to the academic performance of their students (Farooq et al., 2011).

As such, the various available definitions of academic performance of the students can be categorized into following genres:



Figure 2: Genres of definitions regarding Academic Performance

In other words, the amorphous concept of Academic Performance can be defined in terms of gaining knowledge; acquiring skills and competencies; securing high grades and similar academic achievements; securing a progressive career; and intention and persistence towards education. Also, when one seeks to acquire information regarding academic performance of students, the magnitude of significance accorded to the above mentioned versions of Academic Performance, is highest for academic achievement followed by knowledge gained as well as skills and abilities acquired (York et al., 2015).

The concept of academic performance of students is to gain more significance as it is the most sought after outcome of the education process. Further, with an ever-increasing demand for well educated and professionally skilled labour in the industry, the prospects of educational institutions involved in producing the “as per demand” workforce is widely immense. As such, an extreme focus would always be there upon the academic performance of the students. Likewise, efforts to identify and utilize the factors responsible for an improved academic performance of students, has always been a major research area.

This paper tries to summarize the concept of Academic Performance, with an effort to portray the available significant literature on the factors affecting academic performance of students as well as the criteria used to measure the same.

Literature Review:

Meaning of Academic Performance

The lack of consensus regarding the meaning of Academic Performance of students is clearly evident through reviewing the available literature. The term Academic Performance has a multitude of perspectives, which are responsible for the varied constitution of its very definition. As mentioned by Díaz-Morales and Escribano (2015), academic performance is to be understood as the result of a combination of psychological, social, and economic factors, which further lead to the proper multifaceted growth of students. A genre-specific summary of the way the meaning of Academic Performance accommodated varied concepts over time is presented below.

Table 1: Genre-wise definitions of Academic Performance

Genre of Factors used to define Academic Performance	Reference	Definition
Skill and Ability-Centric	Pascarella & Tarrenzini (1980)	Academic performance is the extent to which a student’s development occurs, both academically and intellectually.
Skill and Ability-Centric; Achievement-Centric	Narad & Abdulla (2016)	Academic performance is the knowledge gained which is assessed by marks by a teacher and/or educational goals set by students and teachers to be achieved over a specific period of time.
Achievement-Centric	Finn and Rock (1997)	Higher grades and exam scores define academic performance.
Achievement-Centric	Cambridge University Reporter (2003)	Academic performance is very frequently defined as the performance portrayed by students in tests, course works and examinations.
Achievement-Centric	Choi (2005)	The total points earned in a course signify the academic performance.
Achievement-Centric	Dennis et al. (2005)	Academic performance is the outcome of two variables- students’ personal features (such as skills, motivation, etc.) as well as the environmental features confronting the student.
Achievement-Centric	Yusuf, Onifade and Bello (2016)	Academic performance can be understood as the quantifiable and apparent behavior of a student within a definite period and is an aggregate of scores fetched by a scholar in various evaluations through class tests, mid and end semester examinations, etc.
Knowledge-Centric	Martinez (2007)	Academic performance has been defined as the product outcome portrayed by the students as a result of exposure to learning and training and has been usually articulated through grades.
Knowledge-Centric	Sharm (2012)	Academic performance, a generally used measure of success in educational institutions, is defined as the extent to which a student accomplishes his/ her studies and related tasks.
Career-Centric	Colarelli et al.(1991)	Academic Performance is defined through the types of job offers, status attributable to the job secured, satisfaction gained as well as the commitment level depicted by the student in his career.
Career-Centric	Fralick (1993); Heket and Wallis (1998)	Academic Performance is the scenario wherein the education gained presents the opportunity to the students to develop their abilities, realize ambitions, progress in career and secure high satisfaction levels regarding the career.

Persistence-Centric	York et al. (2015)	Academic Performance can be defined in terms of students' persistence, which can be understood as progression of the students on academic grounds, to attain completion of degree, regardless of institution related contexts and issues.
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Factors affecting academic performance of students

The I-E-O model, derived from Astin’s Theory of Involvement, evidently describes that students’ outcome pertaining to education are determined by student specific inputs (including factors like basic demographics of students, their motivation, interest, learning styles, previous academic attributes, etc.), environmental attributes (like institutional environment, environment at home, peer relations, etc.) as well as the interface between student specific inputs and environmental elements (Astin, 1997). In other words, Input includes the accessible resources, instructors’ credentials, and students’ attributes. Environment groups variables like curriculum, school organization, and school climate. Output is usually defined in terms of students’ achievement. Extensive research has been conducted to ascertain the factors which have been known to impact the academic performance of students. For instance, the transition phase faced by students migrating from school to Higher Education Institutions (HEIs) is a stressful procedure as scholars now have to face a multifaceted atmosphere like never before, with inability to cope with high demands and inappropriate study habits leading to an adversely hit academic performance. Further, Schneider and Preckel (2017), drew two categories of the variables which are capable of explaining the academic performance of students- instructional attributes like social interface, assessment and feedback, clear information, extracurricular training programs, etc., and student specific attributes like intelligence, prior academic performance, level of motivation, learning strategies, etc. Factors affecting the academic performance of students are numerous and they can vary from nation to nation as well as even from person to person. As such, it would be really inadequate to investigate students’ academic performance through a single-factor perspective (De Clercq, Galand, Dupont, & Frenay, 2013). As per the student attrition model, given by Tinto (1975), there are four components which play a significant role towards the students’ success academically:

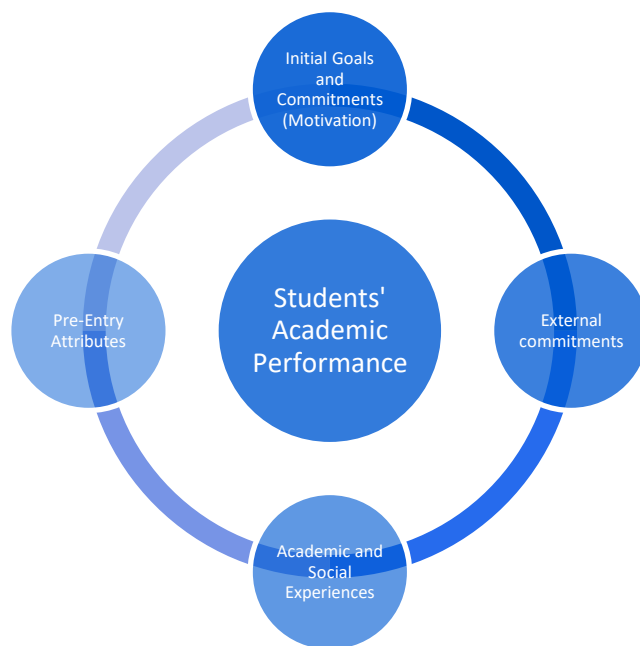


Figure 3: Tinto’s Model of Factors significant for Students’ Academic Performance

There has been a mutual agreement among the researchers regarding understanding academic performance of students as an aggregate of their cognitive as well as non-cognitive attributes (Lee & Shute, 2010) taking into consideration the socio-cultural framework within which the process of learning takes place (Liem & Tan, 2019). Somewhat similar results have been fetched through the research conducted by Singh, Malik & Singh (2016), which basically made an effort to categorize the factors found to impact academic performance of students into the following categories:

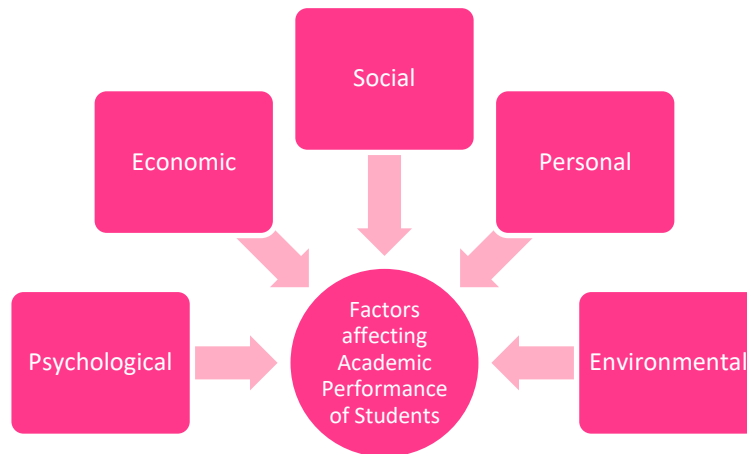


Figure 4: Factors affecting Academic Performance of Students

As per previous researches, a summary of factors which influence academic performance of students has been compiled in Table 2.

Table 2: Summary of Factors Influencing Academic Performance of Students

Genre of Factors affecting Academic Performance of Students	Factors affecting Academic Performance of Students	Justification of the factors with existing literature
Personal Factors	Gender	<ul style="list-style-type: none"> • Difference in the ways male and female students accord importance to various underlying factors to academic performance, brings about significant variations in the academic achievements of male and female students. For instance, ‘efforts put in a task’ finds a place in the explanation of academic performance of female students (Lightbody et.al., 1996; Powers and Wagner, 1984), whereas ability to reason is an answer to the academic performance of male students (Burgner & Hewstone, 1993). • Academic performance portrayed by females has been found to outperform that of males in several researches (Sheard, 2009). In fact, the rate of achieving University degrees is significantly high in case of females, as compared to males (Barrow, et.al. 2009; Farsides & Woodfield, 2007; Richardson & Woodley, 2003)
	Age	<ul style="list-style-type: none"> • Research has found a positive correlation between effects of age and performance of students academically (Chansarkar and Mishaeloudis, 2001; Jabor et al.,2011; Ali et al., 2013), which is in sync with the observations of McInnis et al. (1995) which established that better academic performance can be accorded to mature students. • Conversely, a negative association among age and academic performance was detected by Clark and Ramsay (1990). • Persistence to graduation is also affected by the age of the students; students falling into the category of traditional student age (18-24 years) are more likely to portray persistence efforts towards degree completions owing to least work or family related commitments, as compared to the category of higher aged students (Lord, Bjerregaard, & Hartman, 2013)
	Personality	<ul style="list-style-type: none"> • Students having a greater sense of self-efficacy tend to set higher academic goals and end up performing better (Zimmerman, Bandura & Martinez-Pons, 1992)

		<ul style="list-style-type: none"> Better academic performance can be attributed to students who score high on extraversion, conscientiousness as well as openness (De Raad & Schouwenberg, 1996). Researchers have established strong correlations between academic performance of students as well as self-efficacy and confidence (Chemers, Li-tze, and Garcia, 2001).
	Interest	<ul style="list-style-type: none"> Interest of students also makes way for a positive attitude of students towards attendance in class, which acts as a plus point for the betterment of outcomes (Hijazi & Naqvi, 2006). The interest of students in specific disciplines results in a specifically defined attitude towards the subject area, which in turn is reflected in their academic performance (Mizener & Williams, 2009). Interest of students allows them to focus attentively and deeply on the subject matter, which leads to an enhanced performance academically (Silvia, 2006; Meenu Dev, 2016).
	Learning Preferences	<ul style="list-style-type: none"> As stated by Harb & El-Shaarawi (2006), high academic performance of students can be ensured through bringing congruency between the instructor’s teaching style as well as the learning preference of students, which can be understood as the natural and the preferred way of assimilating information (Reid, 1995).
	Learning style, learning skills, abilities, study habits and motivation	<ul style="list-style-type: none"> The theory of “Concept Mapping” holds great significance as far as learning is concerned. It fosters linking of the newly gained knowledge to the ones which the learner already knows. This theory has the capacity to revolutionize the learning outcomes in the form of sound academic performance (Ausubel, 1963). The study habits of students can be assessed on three parameters, namely, “Distractibility” (concerned with the concentration and attentiveness of the students while they study); “Inquisitiveness” (concerned with the tendency of the students to gain deeper insights into the concept being studied); and “Compulsiveness” (concerned with the degree to which students are able to remember facts studied) (Estes and Richards, 1985) Assisting the students regarding developing and adapting the right and suitable learning strategies, will improve the academic outcomes manifolds (Hattie, et al., 1996). The propensity of the students to attend sessions, take notes, interacting with instructors, adapting time management strategies and sticking to the schedule, etc., do have a high level of correlation with the performance they portray academically (Soares, et.al, 2009). Researchers have established that academic performance of students is affected by factors like amount of time spent on studying (Rogaten et al., 2013), time spent on sleeping (Pilcher & Walters, 1997; Kelly et al., 2001) Research has proved a consequential relationship between good study habits, greater academic interactions and ultimately greater academic performance (Shahzadi and Ahmad, 2011). Students who are inclined towards controlling the utility of their time usually report to have better performances academically along with greater work and life satisfaction (Macan, Shahani & Dipboye, 1990)
	Prior Academic Achievements	<ul style="list-style-type: none"> The previously secured academic achievement, defined as the realization of medium- or long-term educational goals (Yusuf,2002), has been found to have a strong influence on the academic performance of students at the University (Li, Chen & Duanmu , 2010).
Psychological Factors	Mental Setup/thinking pattern/ thought process/ psychological attitude	<ul style="list-style-type: none"> Anxiety has been identified to be imposing an adverse influence on the academic performance of students (Hartnett et al., 2004). A study conducted by Akinleke (2012) aimed to discover the relationship between students’ anxiety about evaluation through test and self esteem and academic performance. The data collected through questionnaire along with the information regarding the previous year GPA denoted that students with low anxiety portrayed higher GPAs comparatively. Also, a positive connect between self esteem and academic performance emerged. Psychological factors outperform intellectual ability of students w.r.t. the impact they are capable of imposing on academic performances of students (Mihaela, 2015). His research stressed that depression, nervousness, life related setbacks and changes in lifestyle may lead to psychological disturbance and as a result a decline in the academic performance may be evident.
Environmental Factors	Environment at home	<ul style="list-style-type: none"> Students’ performance academically and the motivation to perform have been found to have an impact from the kind of environment to which the student is exposed at home (Cassidy and Lynn, 1991). How a student performs academically, receives a great impact from the environment prevailing back at their homes; a strained emotional

		<p>wellbeing of the student subsequent to constant disagreement among parents, may lead to undesirable academic performance (Ichado, 1998).</p> <ul style="list-style-type: none"> • The way a child responds to situations in later life, depends a lot on the child's experience with the family, who are supposedly the first socializing agents for him/her (Ajila & Olutola,2000). • Students, who receive a higher level of parental involvement in and control over the educational matters and issues, tend to perform better academically (Barnard, 2004; Rollins and Thomas, 1979). • Literacy level of mother has been found to improve the academic performance of students. Likewise, the age of the mother is also found to be a deciding factor, because young mothers are capable of controlling the children better as compared to aged mothers and this fact, if utilized properly, can bring about betterment in the study related outcome as well (Hijazi & Naqvi, 2006). • A significant role is played by factors like parents' illiteracy, household issues and troubles, large family size, minimal attention and control from parents, low socioeconomic standing of the family and family structure (intact or broken), in rendering the performance of students as unsatisfactory or merely not up to the standardized norms (Qaiser, Ishtiaq, Zaitoon and Wahab, 2012). • The academic activities of children who are denied parental affection, security and protection are usually on the negative side (Billings, 2012). • Socio-economic background (SEB) of the students along with parental education level plays a significant role in elaborating the students' performance academically (Beaumont and Soyibo, 1998; Graetz, 1995; Considine and Zappala, 2002; McCoy,2005), as educated parents can better assist students in their academic endeavors (Trusty,1999). • The learning facilities available to the students, along with a structured guidance from the parents are the major factors affecting academic performance of students (Singh et al., 2016), because educated parents tend to communicate, guide and assist students to portray better performance on educational grounds (Trusty, 1999; Barnard, 2004)
	<p>Environment at Institution</p>	<ul style="list-style-type: none"> • Recurrent and substantially significant connect and interactions between students and instructors have been known to influence the level of motivation of students, which will consequently effect the way students perform with respect to academically significant components (Astin,1984; Pascarella, 1980; Pascarella, 1985; Terenzini, Pascarella, and Lorang, 1982). • The competitiveness of the instructors clubbed with effectively designed and implemented learning modules is capable of yielding good results, which are directly proportional to the time spent on learning activities (Brophy, 1998). • Researchers like Mlambo (2011), Schwerdt & Wuppermann (2008) and Adeyele & Yusuf (2012) have established a strong link between the academic performance of students as well as the teaching abilities, attributes and effective teaching styles of the academic staff and instructors. • The approach of the instructor towards presentation of the content to the students is a deciding factor regarding the attitude and level of motivation developed among students regarding a particular module (Clay and Breslow, 2006; Sikhwari et al., 2015). • Provision of amenities and facilities like wifi (Allison, Miller, Sturgeon, Nicoll, J. R., & Perera, I. (2010, October). Educationally enhanced virtual worlds. In <i>2010 IEEE Frontiers in Education Conference (FIE)</i> (pp. T4F-1). IEEE. tends to enhance academic performance of students
<p>Economic Factors</p>	<p>Economic Background</p>	<ul style="list-style-type: none"> • Research has proven the correlation between students' family income level and performance scores (Hansen, 2000; Simmons, et.al, 2005; McCoy, 2005) • Economic status of parents potentially effects the overall academic performance of students (Farooq et al., 2011), since it determines the provision of learning facilities, which is a yet another decisive factor behind academic performance of students (Singh et al., 2016). • In fact students possessing a low economic status are more likely to portray low performance in studies (Eamon, 2005)
<p>Social Factors</p>	<p>Interactions with instructors</p>	<ul style="list-style-type: none"> • Instructors, as 'active socialization agent' possess the potentialities to stimulate the motivation to learn among the students (Brophy, 1986). • The way the instructors hold beliefs about themselves along with the nature of teaching approach towards students, influence the students' inclination towards learning, strongly (Raffini, 1993). • A positive bond shared by instructors and students indicate higher course related grades (Wilson, Ryan, & Pugh, 2010).

		<ul style="list-style-type: none"> • It lies in the purview of the instructor to motivate the students to perform well academically through allowing for varies and stimulating tasks (Rahimpour & Magsoudpour,2011). • Social associations, such as student-instructor connections, work for the betterment of students by putting an absolute impact on inspiration and academic achievement (Hoffman, 2014).
	Interactions with peer groups	<ul style="list-style-type: none"> • Face-to-face interactions and support from the surrounding social units such as family, peers, etc., play a significant role in shaping the way students fetch success academically (Muuss, 1996). • Interaction and grouping of weak students with students belonging to the like category results in an upsurge in the way such students had been performing academically (Goethals, 2001). Similar results have been stated by Zimmerman (2000) and Sacerdote (2001), who considered clubbing with academically strong room-mates, may bring a positive shift in performance of students, academically. • The students’ interactions and discussions with instructors and fellow colleagues are considerably significant for effective learning and subsequent performance academically (Lee & Rha, 2009). • Students tend to get inspired from peer having similar goals for future and likewise they end up fetching quality academic performance (Yousuf et al., 2011).

Measuring Academic Performance

Owing to the amorphous nature of “Academic Performance”, a number of instruments can be used to measure the same, keeping in view the very perspective which is being taken into consideration. A majorly used yardstick to measure academic performance has been the “GPA” (Stephan & Schaban, 2002) who applied GPA (grade point average) to evaluate performance of the students in a particular semester. The same measure was utilized by Darling (2005), Galiher (2006), Toriki (1988) and Hijaz and Naqvi (2006). Other researchers assessed the performance of the students through the previous year result or the outcome of a particular subject (Tahir, S., & Naqvi, S. R., 2006; Tho, 1994). Some different researchers used test outcomes or earlier they are considering performance for the particular subject (Hake, 1988). Also, According to Narad and Abdullah (2016) academic performance, which is the knowledge gained and is assessed by marks by a teacher and/or educational goals set by students and teachers to be achieved over a specific period of time, is measured by using continuous assessment or examinations results. Since long, Grade Point Average (GPA) has been assumed to have a direct connect with the general acumen and career potential of individuals owing to which GPA is considered as a standard measure of academic performance of students. Based on an extensive review of the available literature, the findings regarding how the concept of academic performance has been operationalized through GPA, has been stated in Table 3.

Table 3: Review of Literature Regarding Operationalization of Academic Performance through GPA

Genre of Academic Performance	Justification from existing literature regarding use of GPA as a measurement tool
Academic Achievement-Centric Academic Performance	<ul style="list-style-type: none"> • According to a report from Center for Research and Development Academic Achievement (CRIRES)(2005), GPA or grades are a means to measure students’ achievement, through consideration of knowledge gained and skills learned. • The benefits associated with using grades include an upsurge in students’ motivation (Hargis, 2003) as well as provision of maintaining a concrete record of academic achievements of students (Haladyna, 1999).
Skill and Ability-Centered Academic Performance	<ul style="list-style-type: none"> • A research conducted in 1985 by Pizarro (1985) demonstrated academic performance as a gauge of the indicative and responsive

	abilities which expresses the learning of a person through the process of education or training and which can be meaningfully measured through grades.
Knowledge-Centric Academic Performance	<ul style="list-style-type: none"> • GPA is not only used to measure academic performance of students, rather it grants an insight into individual features of students like efforts involved, attendance secured, motivation, etc. along with cognitive achievement (Goldman & Widawski, 1976).
Career-Centric Academic Performance	<ul style="list-style-type: none"> • Researchers have established a direct relationship between academic performance of students and their occupational success (Samson, Graue, Weinstein & Walberg, 1984). The likeliness to be successful on the job can be accorded to one's "smartness" and "intelligence" (Koeppel, 2006), which becomes largely evident through the GPA, thus, qualifying as the "best predictor of employees' performance". • Also, GPA is the most commonly used measure to screen applicants during recruitment (Koeppel, 2006)
Persistence-Centric Academic Performance	<ul style="list-style-type: none"> • Retention of students has been considered as a very fundamental indicator of students' performance and success (Braxton & Brier, 1989) • Researchers have established that the tendency of the students to persist in their studies for long and to a greater degree is directly proportional to the ability of the students to perform academically (Kirby & Sharpe, 2001) • The results of McGrath and Braunstein's (1997) study conducted to examine the effect of demographic, academic, financial, and social attributes on persistence, suggested that the first-semester college GPA is the strongest element for ascertaining students' persistence between the first and second years. • Pascarella and Terenzini (2005) found college GPA to be one of the most reliable indicators of student persistence and degree completion.

Conclusion:

The main motive behind the present study based on the review of available literature was to summarize the varied factors that are known to have an effect on the academic performance of students from Higher education Institutes (HEIs). Consequently, an effort was also made to gain an insight into the meaning of the term "Academic Performance", which led to the study to the fact that the concept possesses an amorphous nature and can be defined in varied senses like academic achievement, skills and abilities gained, knowledge gained, career secured as well as persistence. Findings regarding the factors which are believed to effect the academic performance of students majorly belong to the categories of the environmental factors pertaining to the institutions as well as that of the home; interactions with instructors paving way for the prospects of effective teaching; as well as student centric factors including motivation level, study habits and learning abilities of the students. Furthermore, within the reviewed empiric literature, with respect to the measuring of academic performance, GPA has been found to be the universally accepted and acclaimed measure of academic performance which happens to be the most sought after outcome of education, followed by the magnitude of knowledge gained by the students as well as the skills and abilities acquired as a result of exposure to the education system. The supremacy of GPA among other measures may be attributed to the readily and conveniently available data about students' performance in HEIs.

Limitations:

Although an effort has been made to broaden the scope of this literature review to include the multitude of concepts pertaining to define and measure Academic Performance, the very nature of the concept to proliferate, may have led to some literature remaining outside the purview of this review.

The way forward:

The main motive for which students at HEIs strive is attainment of university qualification which can be acquired by going through the developmental process aimed at personal as well as intellectual development and meanwhile portrayal of sound academic performance, having varied perspectives. Development of employability skills is a significant criterion within the forte of academic performance. The factors which are known to influence academic performances of students at HEIs must be considered for developing strategies to maximize the student outcomes which could later be measured for varied aspects like knowledge gained, skills acquired, degree attained, achievements, career secured, etc. through GPA. Since GPA is a universally accepted measure for evaluating academic performances of students, efforts have to be made by institutions to widen the prospects of the concept to facilitate meaningful derivations regarding student outcomes pertaining to various genres of academic performance. Some suggestions for the same can be stated as follows:

- a. Incorporation of provisions for personal development of students in the form of communications, stress management, etc.
- b. Initiate a shift from a teacher-centered to student centered approach towards learning environment so as to cater to the varied requirements of the students, developing better learning experience for students and likewise paving the way for extraction of better education outcomes.
- c. Motivating the students throughout the learning process to ensure high persistence rates among students shall be the motive.
- d. Challenges to be addressed:
 - Managing variances among the student preferences and requirements regarding learning environment.
 - Maintaining engagement of students, especially those engaged in complex commitments like employment, family issues, etc.

The study leaves open the scope for exploring measures to address and overcome the challenges.

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