

Does the Schema of Top Peer Pressure and Its Relationship with Achievement Change from Junior High School to University?

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Abstract

This study aimed to find out what cognitive taxa constitute the schema of Top Peer Pressure (TPP) among Junior High School Students (JHSSs), which taxa associated with the JHSSs' English and school achievement and whether JHSSs' taxa differ from those of Undergraduate University Students (UUSs). To this end the TPPS was administered to 304 HSSs and their responses were subjected to Principal Axis Factoring and Varimax with Kaiser Normalization. The results showed that six factors representing JHSSs' cognitive taxa of kingdom, phylum, class, order, family and genus underlie the TPPS. Among them, the taxon of the kingdom was associated significantly with both English language and school achievement, while only the taxon of the family was associated significantly with English language achievement. Contrastive analysis of JHSSs' cognitive taxa with those of UUSs showed that the UUSs pathologically manipulate the items comprising the schema of TPP not only at its kingdom taxon but also at the taxa of phylum, class and order to justify their low university achievement. The results are discussed and suggestions are made for future research.

Keywords: cognition, divine religion, humanistic psychology, schema theory, teachers

Introduction

The word type peers represent a significant concept or schema in the minds of sapiens in general and scholars in divine religion, economics, education, psychiatry, psychology and sociology in particular (Khodadady, 1997). Few scholars in these fields have, however, approached it scientifically. According to Best and Kahn (2006), the peers would have been explored scientifically if the scholars had developed or employed a theory to explain who the peers are and then tested their influence and/or pressure on the sapiens who suffer from educational, psychiatric, psychological, or social disorders by testing the hypotheses deduced from the theory.

Taylor (2015) employed systems theory in the ninth edition of her textbook entitled Health Psychology to address peers. Utilizing the theory just once in its 10-page glossary, she defined it as "The view that all levels of an organization in any entity are linked to each other hierarchically and that change in any level will bring about change in other levels." Although Taylor employed the word type peers 24 times, she did not directly relate it to systems theory anywhere in her textbook. Nor did she formulate or cite any hypothesis deduced from the theory to test the relevance of peers to health psychology.

Citing Broman (1993) and Turbin et al. (2006), Taylor (2015), for example, claimed that "peer pressure often leads to smoking in adolescence but may influence people to stop smoking in adulthood" (p. 40). Neither Broman nor Turbin et al., however, resorted to systems theory to explain the claim. The latter, for example, chose 1,739 adolescents in Beijing, China and 1,596 adolescents in Grades 7, 8, and 9 in the United States and administered the 36-page Adolescent Health and Development Questionnaire to them. The content of the questionnaire was developed not on systems theory but "derived from the constructs in problem-behavior theory" (Turbin et al., 2006, p. 447).

Problem-behaviour theory has little to do with "all levels of an organization ... linked to each other hierarchically and that change in any level will bring about change in other levels" (Taylor, 2015, p. 250). This is because the basic hypothesis of the theory, according to Jessor (2014), attributes all sapiens' problems only to variation in the personality system and variation in the perceived environment systems. The personality and environment "should each account for variation in problem behavior and, taken together, should provide a stronger account than either alone" (p. 243). What Taylor (2015) failed to mention is that having a hierarchical organization is one of the main features of sapiens' cognition, as explained by Khodadady's (1997) Microstructural Approach of Schema Theory (MICAST). (It will be elaborated on shortly).

Unlike Taylor (2015), psychiatrists Sadock et al. (2015) allocated no entry for systems theory in the the12-page glossary of their textbook entitled Kaplan & Sadock's Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry (11th edition). They did, however, employ it five times in its body in order to trace the conceptual trends in the history of psychosomatic medicine in four trends chronologically ordered as psychoanalysis, psychophysiology, socio-culture and systems theory.

Tapping into systems theory as the latest trend in psychosomatic medicine, Sadock et al. (2015) equated it with "communications theory, object relations theory, social role theory, ethology, and ecology." They announced that

The core premise entails the idea of a family as a self-regulating, open system that possesses its own unique history and structure. This structure is constantly evolving as a consequence of dynamic interaction between the family's mutually interdependent systems and persons who share a complementarity of needs (p. 1285).

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Acknowledgment: We are grateful to the principals, teachers and students of the junior high schools in which this project was conducted. Without their cooperation and participation its findings would not present themselves to humanity. **Authors' Contributions:** Both the authors done equally for this research work. **Conflict of Interest:** None. **Funding Source:** Nil.

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Instead of addressing the structure in the mutually interdependent systems of sapiens' family, Sadock et al. (2015), however, employed peers, peer relationships, and peer groups 180 (55.6%), 46 (14.2%) and 29 (9.0%) times, respectively to include the family of other biological species of organisms. They did, for example, employ their peers for the first time in their textbook to address the family of monkeys'. Following Harlow (1958), Sadock et al. argued that when monkey infants are isolated from their mothers from birth and kept from forming attachments, they become "withdrawn, unable to relate to peers [emphasis added], unable to mate, and incapable of caring for their offspring" (p. 98).

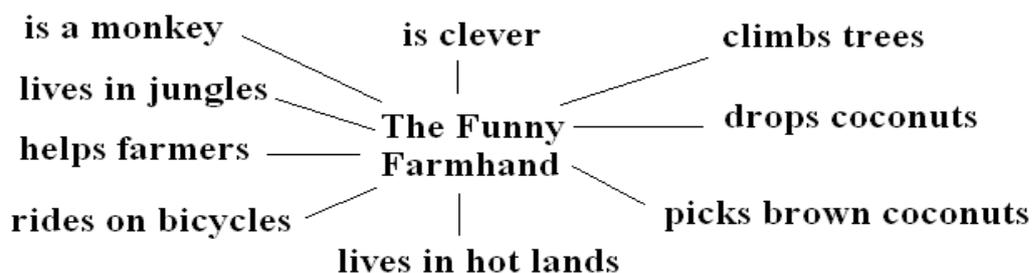
The literature reviewed above shows that modern psychiatrists and psychologists employ systems theory not to study peers within a hierarchical structure but to treat them similar to, if not the same as, "nonhuman primates and other animals" (Sadock et al., 2015, p. 98) whose disorders could be studied and treated by resorting to findings in fields such as biology, economics and sociology as some relevant systems. The assumption has resulted in accepting 19 types of peers in psychiatry alone, i.e., adolescent, chronological, delinquent, deviant, dorm, less cognitively impaired, male, matched non-foster-care, neighborhood, nondelinquent, nonsmoking, normal, outgoing, popular, professional, same-age, similarly reared, specific, and verbally competent peers.

While systems theory divides peers into categories such as delinquent and nondelinquent sapiens, the MICAST, according to Khodadady and Hesarzadeh (2014), approaches each peer as a sapiens who learns a word type such as farmhand to develop a schema whose cognitive taxa change over time as s/he actualizes her/his adopted self. In terms of systems theory, upon which references such as dictionaries have compiled a schema such as a farmhand, for example, always denotes "someone who works on a farm" (Longman, 1995, p. 502). This definition will be of little help if grade 10 senior high school students (SHSSs) read the passage "the Funny Farmhand" in their textbook entitled English Book 1 (Birjandi et al., 2012).

Upon comprehending "The Funny Farmhand," a grade 10 SHSS and her/his peers will modify their schema of farmhand into a nine-feature concept presented in Figure 1. Birjandi et al. (2012) presented these features in 19 sentences and five paragraphs. According to the MICAST, the readers' cognition of the passage and the manner in which they relate its constituting features to each other depends not on systems but on the hierarchical taxa into which they assign the features. The passage is understood when the readers assign the features presented as writers' words, phrases, clauses, sentences and paragraphs to their own taxa, eight of which were first identified by Linnaeus (1735). He believed that any living being or organism could be biologically studied as a species, genus, family, order, class, phylum, kingdom, and domain.

Figure 1

Developing the schema "Farmhand" and Relating it to the Words Constituting a Reading Passage



Note. From "The effect of schema-vs-translation-based teaching on learning English in high schools" by E. Khodadady & R. Hesarzadeh (2014), *Theory and Practice in Language Studies*, 4(1), p. 148. (<https://doi.org/10.4304/tpls.4.1.143-154>).

Recent findings show that Linnaeus' (1735) taxonomy is not merely biological but cognitive simply because it is eight constituting taxa broaden in terms of their meaning, i.e., from the fewest or narrowest to the most or broadest meaning conveyed through the distinctive features of each taxon (Khodadady & Zahani, 2021a, 2021b). By resorting to the Wise Quran as a representative text of divine religion, Khodadady and Dastgahian

(2022) expanded Linnaeus' taxa from eight to nine (Table 1). The application of these nine taxa to research findings shows that the writers and takers of almost all scales, including the Top Peer Pressure Scale (TPPS), follow either the macrostructural theory of schema (MACAST) or MICAST. The researchers usually validate the scales through statistics or psychometrics.

Table 1

The Hierarchical Taxa of Top Peer Pressure Addressed in Cognition, Biology, Divine Religion and Psychometrics

Cognition	Biology	Distinctive features	Divine religion	Psychometrics
Domain	organisms	humans, chimpanzees, monkeys, bats, frogs, birds, plants, bacteria	God	top peer pressure
Kingdom	animals	humans, chimpanzees, monkeys, bats, frogs, birds	practicing monotheist	1st factor
Phylum	vertebrates	humans, chimpanzees, monkeys, bats, frogs	Polytheist	2nd factor
Class	mammals	humans, chimpanzees, monkeys, bats	self-theist	3rd factor
Order	primates	humans, chimpanzees, monkeys	psyche	4th factor
Family	hominid	humans, neanderthals chimpanzees	cognition (and emotion)	5th factor
Genus	Homo	humans, neanderthals	Instincts	6th factor
Species	sapiens	wise living beings or humans	Body	sapiens
Words	living beings	they	he, I, it, she, they, we, you	types

Note. From "Which self-actualization associates with language and school achievement: Monotheistic or polytheistic?" by E. Khodadady & B. S. Dastgahian (2022), *Journal of Psychiatry and Mental Health*, 7(1), p. 4. (<https://doi.org/10.16966/2474-7769.148>).

Organisms, for example, are studied in biology as the first or highest taxon of cognition, i.e., domain. Their 9th or lowest taxon consists of the words living beings, as shown in Table 1 above. As a biologist, Linnaeus (1735) added the word type wise to living beings to develop his 8th cognitive taxon of species. It describes the species of sapiens as humans who are not only living beings but also "wise" (Sadava et al., 2014, p. 7). Similarly, the cognitive taxon of species broadens into the higher taxon of the genus to represent Homo in bioglogy when the species of neanderthals is added to the species of sapiens. The addition of new features continues till the highest cognitive taxon of the domain is formed to represent organisms.

Since the TPPS deals only with the cognitive species representing the sapiens in biology, the present researchers

parsed its 27 items into their constituting words. They categorized and coded the words constituting each and all of the items to determine the features of Words as the lowest cognitive taxon of the TPPS. When they analyzed the words constituting the TPPS they found that it consists of 120-word types. The types differ from each other in terms of their meaning and frequency or token. The word type "I", for example, meant a non-top student and had a token of 35. The word types, in turn combine with each other in various tokens to describe non-top and top students as well as their teachers as the features constituting the cognitive taxon of species. They are collectively referred to as peers in humanistic psychology (Table 2).

Table 2

UUSs' Cognitive Taxa of Top Peer Pressure in Humanistic Psychology

Cognition	Psychometrics	Humanistic psychology	Word tokens	Alpha*
Domain	TPPS	top peer pressure	249	0.88
Kingdom	1st factor	competing with the TP	98	0.84
Phylum	2nd factor	debilitated by the TP	62	0.85
Class	3rd factor	hating the TP	52	0.82
Order	4th factor	following the TP	18	0.68
Family	5th factor	doubting becoming a TP	19	0.80
Genus				
Species	Sapiens	non-top students, teachers, top students		
Word	120 types	her/him, highest score, I, study ...		

Note. * Adapted from "Top peer pressure and academic achievement within a domain controlled field" by E. Khodadady & M. Zabetipour (2013), *Journal of Basic and Applied Scientific Research*, 3(6), p. 1136.

TPPS = Top peer pressures; TP = Top peer.

In contrast to the MACAST, which relies on specialists to explain how sapiens actualize themselves, Khodadady and Zabetipour (2013) resorted to the MICAST to show how UUSs actualize themselves through the pressure their top peer exerts on them. Based on the pressure expressed by the UUSs they developed and administered the 27-item TPPS to 312 UUSs. When they subjected their responses to Principal Axis Factoring (PAF) and rotated the results via Varimax with Kaiser Normalization (VKN) they found that five factors underlay the TPPS. Khodadady and Zabetipour named them debilitating, motivating, marginalizing, referencing and inspiring. The present researchers, however, renamed the factors competing with the TP, debilitated by the TP, hating the TP, following the TP, and doubting becoming a TP, respectively (Table 2).

While the TPPS measures UUSs' schema of top peer pressure as the taxon of the domain in cognition, its five factors measure its taxa of the kingdom, phylum, class, order and family. Moreover, the order of taxa is determined statistically because the first factor representing the taxon of the kingdom "accounts for the most variance" while "later factors," e.g., the taxa of phylum, class, order and family, account for "less and less of the variance until they are no longer reliable" (Tabachnick & Fidell, 2007, p. 611). The results presented in Table 2 above do, therefore, show that UUSs cognition of top peer pressure lacks the 7th cognitive taxon of genus represented by the 6th factor in the MICAST-based humanistic psychology.

By recognizing sapiens as the only authority who decides how they should live, humanistic psychology neither addresses the self as a cognitive domain nor specifies its constituting taxa. It does not, for example, specify how sapiens actualize themselves as peers (see Table 2). It does, however, argue that peers differ from each other in the taxon of species when they are referred to as non-top students, top classmates and English teachers. In sharp contrast to humanistic psychology, divine religion regards God as the only authority who describes not only his own self as a cognitive domain but also assigns the sapiens to the kingdom of practicing monotheists, phylum of polytheists and class of self-theists (Table 1).

While divine religion specifies what practicing monotheists, polytheists and self-theists exactly do as selves when they interact with other sapiens as peers, humanistic psychology camouflages these selves in the heterogenous factors extracted from the UUSs' responses on the TPPS. Due to their heterogeneity, the cognitive taxa represented by the psychometric factors do, therefore, relate to each other differently. UUSs' Following the TP, for example, relates neither to competing with the TP ($r = .09$, ns) nor to hating the TP ($r = .09$, ns). Doubting becoming a TP, however, correlates significantly not only with competing with the TP ($r = .47$, $p < .01$) but also with hating the TP ($r = .38$, $p < .01$) (Table 3).

Table 3

Correlations between the UUSs' TPPS, its Cognitive and Humanistic Taxa and GPA (n=312)

Cognition	Humanistic psychology	GPA	1	2	3	4	5
Domain	Top peer pressure	-.297**					
Kingdom	Competing with the TP	-.374**	.792**				
Phylum	Debilitated by the TP	-.046	.629**	.114*			
Class	Hating the TP	-.116*	.744**	.599**	.235**		
Order	Following the TP	-.080	.412**	.091	.482**	.088	
Family	Doubting becoming a TP	-.337**	.693**	.467**	.458**	.381**	.216**

Note. Adapted from "Top peer pressure and academic achievement within a domain controlled field" by E. Khodadady & M. Zabetipour (2013), *Journal of Basic and Applied Scientific Research*, 3(6), p. 1136.

([https://www.textroad.com/pdf/JBASR/1.%20Basic.%20Appl.%20Sci.%20Res.,%203\(6\)1132-1140,%202013.pdf](https://www.textroad.com/pdf/JBASR/1.%20Basic.%20Appl.%20Sci.%20Res.,%203(6)1132-1140,%202013.pdf))

TP = Top peer.

* $p < .5$; ** $p < .01$.

In addition to relating differently to each other, the humanistic taxa of top peer pressure relate differently to UUSs' GPAs. As shown in Table 3 above, the GPAs correlated significantly but negatively not only with the TPPS ($r = -.30, p < .01$) as the domain of top peer pressure but also with hating the TP ($r = -.12, p < .05$), competing with the TP ($r = -.37, p < .05$) and doubting becoming a TP ($r = -.34, p < .01$). These results show that the more UUSs of the English language hate their TPs, compete with them and doubt becoming a TP themselves the less they achieve academically.

Although Khodadady and Zabetipour made their TPPS public in 2013, no scholar has explored its construct validity with sapiens of different educational levels. The present study was, therefore, designed to find out whether the administration of the TPPS to JHSSs and subjecting their responses to the PAF and VKN will result in a change in the nine-taxon cognitive structure of the TPPS.

Hypothesis

The following seven hypotheses were formulated to be tested. Hypothesis 1: The TPPS is comprehensible for Junior High School students (JHSSs)

Hypothesis 2: The number of factors developed by JHSSs differs from that of undergraduate university students (UUSs).

Hypothesis 3: The number of items constituting JHSSs' factors differs from that of UUSs.

Hypothesis 4: The TPPS correlates significantly with JHSSs' English language achievement.

Hypothesis 5: The TPPS correlates significantly with JHSSs' GPAs.

Hypothesis 6: The factors underlying the TPPS correlate significantly with JHSSs' English language achievement.

Hypothesis 7: The factors underlying the TPPS correlate significantly with JHSSs' school achievement.

Methodology

Participants

A total number of 304 *male* students registered in one private and two state junior high schools participated in this study voluntarily. The schools were run by the Iranian endowments organization and the ministry of education in Mashhad, Iran, respectively. The students had registered in grades 7 ($n = 124, 40.8\%$), 8 ($n = 103, 33.9\%$), and 9 ($n = 77, 25.3\%$). Their age ranged from 12 to 17 ($M = 14.09, SD = .966$). Two hundred ninety-eight (98.0%), two (.7%) and one (.3%) conversed in Persian, Turkish, and Turkamini as their mother language, respectively. The Turkish and Turkamini participants also conversed in Persian as their second language in the schools.

Instruments

The Persian Demographic Scale (DS) and Top Peer Pressure Scale (TPPS) developed by Khodadady and Zabetipour (2013) were employed in this study. The participant's scores on the English language examination and GPAs were also employed to explore the relationship between top peer pressure, the English language and school achievement, respectively.

The Persian demographic scale (DS). The Persian DS comprised two short answer questions dealing with its takers' age and the scores they obtained on their English language examination. It also required the takers to answer four multiple-choice items dealing with their grade of study in school, gender and the languages they spoke as their mother tongue.

The Persian top peer pressure scale. Khodadady and Zabetipour (2013) developed the TPPS by attending a number of university classes offered to senior UUSs. Upon observing their performance in several sessions, they chose and interviewed the students who kept silent whenever a topic was brought up in English in the class. They were asked what they thought about their classmates who were the best in terms of their English language ability. After pooling and scrutinizing 50 answers, Khodadady and Zabetipour chose 27 to develop their five-choice items of the TPPS.

Each item on the TPPS required its takers to indicate whether they strongly disagreed, disagreed, had no idea, agreed or strongly

agreed with its content. Khodadady and Zabetipour (2013) administered the TPPS to 312 UUSs of the English language majoring in three tertiary education institutions. After assigning the values of 1, 2, 3, 4 and 5 to the five choices, respectively, they subjected the UUSs' responses on the TPPS to PFA and VKN and extracted five factors (see Table 1).

In addition to having content and construct validity, the TPPS and its five underlying factors have internal consistency. The alpha reliability of TPPS ($\alpha = .88$) was, for example, "high" (Salvucci et al., 1997, p. 115) because its coefficient was greater than .80, as were the coefficients of three factors named debilitated by the TP ($\alpha = .85$), competing with the TP ($\alpha = .84$), hating the TP ($\alpha = .82$), and doubting becoming a TP ($\alpha = .80$) in this study. The reliability of the fourth factor named following the TP ($\alpha = .68$) was, however, "moderate" because its coefficient fell between .50 and .80.

English Language scores. Based on the content of the two-course books Prospect 1: Student Book (Sharbiyan et al., 2014), and Prospect 2: Student Book (Sharbiyan et al., 2014) taught to grade 7 and 8 JHSSs nationally during the school year 2021-2022, the present authors developed two examinations to evaluate their listening, speaking, reading and writing abilities at the end of the school year. They consisted of three sections measuring the students' abilities to speak (5 scores), listen (5 scores) and read and write (10 scores).

The listening ability of all grades in JHSSs was measured by short conversations recorded on the tape, reading instructions given in Persian, and choosing the correct answers among two or three written choices. The reading and writing abilities of grades 7 and 8 were, however, measured by items 1) differentiating certain written small and capital letters and the names of certain foods and drinks from each other and writing them in specified labeled blank rows, 2) indicating the truth or falsity of some sentences describing given photos, 3) reading a paragraph and naming the photos given below it, 3) ordering certain proper names alphabetically and 5) writing the answers to questions related to the student's personal life.

Unlike grades 7 and 8, the listening, reading and writing abilities of grade 9 JHSSs were measured by a written test developed by the Iranian ministry of education on the English course book Prospect 3: Student Book (Moqaddam et al., 2015). The listening was assessed by 10 written true-false, two-choice, and fill-in-the-blank items to which a value of five out of 20 was assigned. In order to answer these questions, the students had to listen to three short recorded conversations.

The reading and writing abilities of grade 9 JHSSs, to which a score of 10 out of 20 was allotted, were assessed by 30 items: four written sentences to be matched with four drawings, one three-choice reading item, two fill-in-the-blank short conversation items, three two-choice items developed on a written short conversation, and a paragraph in which four words had been deleted. They were presented along with an extra word to be chosen and inserted in four numbered blanks. The items also required finding four misspelled words in a paragraph, rewriting two sentences with two words inserted in syntactically wrong slots, answering four true-false items and three open-ended questions based on a two-paragraph passage and developing a paragraph by writing up two sentences. The topic sentence of the paragraph was given along with six words as prompts.

Grade point averages (GPAs). The JHSSs in grades 7, 8 and 9 reported their GPAs themselves. They are estimated by adding up and averaging the scores obtained out of 20 on 14 courses in grades 7 and 8: 1) Arabic, 2) culture and arts, 3) English, 4) heavenly messages, 5) Islamic sciences, 6) mathematics, 7) Persian, 8) physical education and health, 9) Quran, 10) science, 11) social studies, 12) thought and lifestyle, 13) vacation and technology, and 14) writing. In grade 9, the three courses offered at grades 7 and 8, i.e., heavenly messages, sciences and thought and lifestyles, were replaced with Persian dictation, experimental sciences, and self-defense education.

Procedure

The second researcher in this study, who taught the English language to the participants, contacted the principals of schools in person and secured their approval and cooperation. On agreed

dates, he administered the booklet containing the DS and TPPS in a single session. Before administering it he explained the purpose behind its development and asked the participants to read the booklet and answer its questions one by one. While the students were taking the TPPS, he walked along the aisles to observe their performance and answer their questions. The students handed in the booklets when they filled them out.

Data Analysis

Following Khodadady and Bagheri (2022), the English language was treated as a domain consisting of semantic, syntactic and parasynthetic kingdoms. The kingdoms were then subsumed under 12 genera in order to specify the function and tokens of word types comprising the TPPS. The specified linguistic kingdoms and genera were also coded to determine the readability level of the TPPS and run statistical analyses on the word tokens.

Based on Dastgahian (2019) and Khodadady and Mehrzmay's (2017) findings, instead of the Flesch Reading Ease Score and Coh-Metrix Usability Score, Khodadady Readability Ease Score (KRES = Σ Syntactic and Parasynthetic Schema Types \div Σ Semantic Schema Types) was employed in this study to estimate the readability level of the TPP. The score ranges from .01 (extremely difficult) to .99 (extremely easy).

The internal reliability of the TPPS and its underlying factors were estimated by Cronbach's alpha. To extract and rotate the factors, the PAF and VKN were utilized, respectively. The eigenvalues of one and higher were adopted to determine the

number of factors. Based on Tabachnick and Fidell's (2001) suggestions, loadings of 0.32 and higher were considered acceptable to choose the items constituting a given factor. If an item loaded acceptably on several factors, it was considered contributory to just one factor upon which it had the highest acceptable loading. Upon specifying the number of factors and their constituting items, they were correlated with the TPPS, scores on the English examinations and GPAs. All the statistical analyses were conducted via IBM SPSS Statistics 24 to test the hypotheses formulated in the study.

Results

Table 4 presents the tokens and types of semantic, syntactic and parasynthetic words comprising the English version of the TPPS. As can be seen, 71% of word types are semantic in the kingdom. (The word types "teachers," "I," and "in order to" are, for example, semantic, syntactic and parasynthetic, respectively. The word "teachers" is semantic because it has a complete meaning, while the syntactic and parasynthetic words "I" and "in order to" depend on semantic words to make their meaning complete.) When KRES was applied to the types, i.e., Σ Syntactic and Parasynthetic Schema Types (31+4) \div Σ Semantic Schema Types (85), .41 was obtained. This score is greater than the 0.34 obtained by Khodadady and Ghoreghlou (2013) on Learning to Read English for Pre-University Students (Birjandi et al., 2012) taught to grade four senior high school students. Since the KRES of .41 is greater than .34, it confirmed the first hypothesis that the TPPS was comprehensible to JHSSs.

Table 4

Word Tokens and Types constituting the Linguistic Kingdoms of 27-item TPPS

Kingdom	Example word types	Tokens		Types	
		Frequency	Percent	Frequency	Percent
Semantic	the highest score, teachers	109	43.8	85	70.8
Syntactic	I, her/him	134	53.8	31	25.8
Parasynthetic	always, in order to	6	2.4	4	3.3
	Total	249	100	120	100

Table 5 presents the descriptive statistics as well as the initial and extraction communalities of the TPPS. As can be seen, the mean score of 10 items, i.e., 1, 3, 4, 5, 7, 8, 9, 10, 11, and 12, are below 2, indicating that the JHSSs have disagreed with them. Item 1, for example, shows that the majority of students disagree that

they become happy whenever the TP is absent. In contrast, the mean score of nine items are above 3, i.e., 19, 20, 21, 22, 23, 24, 25, 26, and 27, indicating that the majority have agreed with them. Item 21, for example, shows that the JHSSs agree that they like to get a score higher than their TPs.

Table 5

Descriptive Statistics, Initial and Extraction Communalities of 27-Item TPPS

Item	M	SD	Initial	Extraction	Item	M	SD	Initial	Extraction
1	1.80	1.116	0.256	0.269	15	1.50	0.864	0.359	0.376
2	2.10	1.248	0.240	0.205	16	3.04	1.497	0.431	0.709
3	1.58	0.999	0.494	0.541	17	3.04	1.515	0.427	0.528
4	1.65	1.033	0.324	0.340	18	1.55	1.020	0.377	0.458
5	1.48	0.908	0.362	0.369	19	3.88	1.319	0.340	0.297
6	2.70	1.451	0.274	0.304	20	3.55	1.296	0.431	0.465
7	1.78	1.123	0.401	0.461	21	4.08	1.256	0.323	0.354
8	1.64	1.008	0.489	0.566	22	3.89	1.315	0.469	0.534
9	1.46	0.870	0.323	0.323	23	3.43	1.408	0.427	0.515
10	1.58	0.920	0.405	0.406	24	2.76	1.468	0.402	0.484
11	1.81	1.055	0.475	0.592	25	3.33	1.324	0.455	0.510
12	1.90	1.193	0.474	0.521	26	3.69	1.207	0.494	0.487
13	2.23	1.342	0.389	0.378	27	3.47	1.411	0.431	0.468
14	2.12	1.292	0.427	0.413					

Note. Extraction method: Principal axis factoring.

Table 6 presents the variances explained by six factors extracted and rotated from JHSSs' responses in this study. As can be seen, they explain 44% of the cumulative variance in the TPPS. It is relatively lower than 48%, explained by five factors Khodadady

and Zabetipour (2013) extracted from UUSs' responses on the TPPS. The difference in the percentage of variance in the two groups is due to the number of factors, i.e., five and six, underlying the UUSs and JHSSs' TPPS, respectively.

Table 6
Total Variance (V) and Cumulative Variance (CV) are explained by Factors Extracted from JHSSs' Responses on the TPPS

Factor	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	V %	CV %	Total	V %	CV %	Total	V %	CV %
1	5.399	19.996	19.996	4.835	17.907	17.907	2.981	11.041	11.041
2	4.180	15.481	35.477	3.651	13.524	31.431	2.847	10.545	21.586
3	1.990	7.371	42.848	1.462	5.415	36.846	2.108	7.807	29.394
4	1.262	4.676	47.524	0.842	3.120	39.966	1.478	5.474	34.868
5	1.124	4.162	51.686	0.580	2.150	42.116	1.284	4.755	39.622
6	1.084	4.013	55.699	0.503	1.862	43.978	1.176	4.355	43.978

Table 7 presents the word types and factors constituting JHSSs' cognitive domain of TPP and their reliability estimates. As can be seen, the reliability of the domain measured by the TPPS ($\alpha = .83$) and its kingdom taxon revealing the JHSSs' competition with the TP

($\alpha = .83$) is high because of being in .80s. The reliability of the remaining five cognitive taxa are, however, moderate ranging from .77 (debilitated by the TP) to .67 (hating the TP).

Table 7
The Cognitive Taxa of the JHSSs' TPPS, their Constituting Word Tokens (WK) and Word Types (WP) and Alpha Reliability Coefficients

Cognition	Psychometrics	Humanistic psychology	No of WK	Alpha
Domain	TPPS	top peer pressure	249	.83
Kingdom	1st factor	competing with the TP	54	.80
Phylum	2nd factor	debilitated by the TP	66	.77
Class	3rd factor	envying the TP (items	41	.74
Order	4th factor	hating the TP	43	.67
Family	5th factor	following the TP	26	.71
Genus	6th factor	doubting becoming a TP	19	.73
Species	Sapiens	non-top students, teachers, top students		
Word	120-word types	her/him, highest score, I, study ...		

Note. TPPS = Top peer pressures; TP = Top peer.

Table 8 presents the 27 items of JHSSs' TPPS and their acceptable loadings on six factors named 1) competing with the TP, 2) debilitated by the TP, 3) envying the TP, 4) hating the TP, 5) following the TP, and 6) doubting becoming a TP. As can be seen, the factors differ from each other in terms of their constituting

items. While six items, i.e., 19, 20, 21, 22, 25, and 26, for example, loaded acceptably on factor 1, seven items, i.e., 2, 3, 4, 5, 8, 9, and 14, contributed to factor 2. Factor six represented doubting becoming a TP with just two items, i.e., 16 and 17.

Table 8
The Cognitive Genera Represented by the 27 Items of JHSSs' TPPS and their Acceptable Loadings (L) on Six Factors (F) Extracted from 304 JHS Students' Responses

Item	F	L	Statement
22	1	.713	Although I know that s/he is better than me, I try to excel and achieve more than s/he does.
20	1	.660	I do my homework/projects as accurately and precisely as s/he does.
25	1	.658	To attract my teachers' attention as much as s/he does, I study more and try harder.
26	1	.621	Whenever we have an exam, I study harder than her/him to get the highest score.
21	1	.561	I do like to get a score higher than her/his.
19	1	.500	I try hard to reach her/his level of language proficiency.
8	2	.741	I believe that I can never become the top student in the class.
3	2	.720	I believe I can never get the highest score.
4	2	.570	My GPA will decrease.
5	2	.525	I sometimes ask myself, "Why should I study for the exams when I know that s/he will get the highest score?"
9	2	.510	I'm totally hopeless and stressed.
14	2	.434	Whenever teachers ask a question and I want to answer, s/he raises her/his hand and because of that, I avoid answering the question.
2	2	.338	I keep silent whenever s/he participate in class activities.
11	3	.724	I become jealous whenever teachers pay attention ONLY to her/him.
12	3	.662	Teachers' exclusive attention to her/him bothers me.
13	3	.501	I sometimes study more, but since the teachers have accepted her/him as the top student, they always give the highest score to her/him
10	3	.469	Her/his success, language proficiency, and top scores make me jealous.
18	4	.578	I hate her/him and I wish s/he were a normal student.
7	4	.556	I become happy whenever s/he is absent.
15	4	.397	Because of her/him, I don't try to study as much as I can.
1	4	.386	While giving lectures or speaking, I try not to look at her/him in order not to become anxious.
6	4	.344	I like to take the courses s/he has not taken so that I can reveal my ability.
24	5	.628	I follow her/him as a model and try to be like her/him.
23	5	.581	I ask her/him for help whenever I face problems.
27	5	.512	Her/his attempts and motivation have made me study more.
16	6	.784	I wonder whether one day I will be respected and praised as much as her/him.
17	6	.618	I always wonder whether I will be able to speak and participate in class activities as much as s/he does.

As can be seen in Table 8 above, the number of factors extracted from JHSSs' TPPS, i.e., six, is more than the five factors extracted from UUSs' TPPS (Table 2). They do, therefore, confirm the second hypothesis that the number of factors underlying the JHSSs' TPPS differs from that of UUSs. The difference shows that the UUSs decrease or simplify their taxa of top peer pressure as they move from secondary to tertiary education.

The results reported in Table 8 above also confirm the third hypothesis that the number of items that constitute five out of six factors underlying JHSSs' top peer pressure differs from that of UUSs. Although the sixth factor, named doubting becoming a TP, consists of the same two items for both JHSSs and UUSs, it

represents the genus taxon for the former but the family taxon for the latter cognitively. These findings show that through humanistic psychology, UUSs manipulate their own cognition in order to blame others for their academically low achievement.

Table 8 presents correlations of the HSSSSs' TPPS and its underlying factors with their ESs and GPAs. They disconfirm the fourth hypothesis that the TPPS correlates significantly with the ESs ($r = -.07$, ns). They also disconfirm the fifth hypothesis that the TPPS correlates significantly with the GPAs ($r = -.08$, ns). These findings are in sharp contrast to those of Khodadady and Zabetipour (2013), who reported a significant but negative correlation between UUSs' TPPS and their GPAs ($r = -.30$, $p < .01$).

Table 9

Correlations between the JHSSs' English Scores (ESs), GPA, and the Taxa of Top Peer Pressure

Cognition	Humanistic psychology	ESs	GPA	1	2	3	4	5	6
Domain	TPPS	-.074	-.080						
Kingdom	Competing with the TP	.281**	.176**	.615**					
Phylum	Debilitated by the TP	-.354**	-.258**	.594**	-.092				
Class	Envyng the TP	-.119*	-.031	.646**	.139*	.490**			
Order	Hating the TP	-.126*	-.093	.661**	.158**	.469**	.549**		
Family	Following the TP	.122*	.024	.462**	.480**	.005	-.042	-.043	
Genus	Doubting becoming a TP	-.155**	-.177**	.591**	.340**	.214**	.235**	.267**	.274**

Note. TPPS = Top peer pressures; TP = Top peer.

* $p < .5$, ** $p < .01$.

The results presented in Table 9 above, however, confirm the sixth hypothesis because JHSSs' six factors underlying their TPPS correlate significantly with their ESs, i.e., competing with the TP ($r = .28$, $p < .01$), following the TP ($r = .12$, $p < .05$), debilitated by the TP ($r = -.35$, $p < .01$), doubting becoming a TP ($r = -.16$, $p < .01$), hating the TP ($r = -.13$, $p < .05$) and envying the TP ($r = -.12$, $p < .05$), represented by factors 2, 6, 4 and 3, respectively.

Finally, the results presented in Table 8 above confirm the seventh hypothesis partially because JHSSs' school achievement represented by their GPAs correlates significantly with three out of six factors representing the humanistic taxa of competing with the TP ($r = .18$, $p < .01$), debilitated by the TP ($r = -.26$, $p < .01$) and doubting becoming a TP ($r = -.18$, $p < .01$). These findings are in sharp contrast to that of Khodadady and Zabetipour (2013) because out of five factors underlying the UUSs' TPPS, their GPAs correlated significantly with only one factor representing the humanistic axon of competing with the TP ($r = -.12$, $p < .05$).

Discussion

Various definitions of peer pressure have been offered in the literature. For Clasen and Brown (1985), for example, it involves the "pressure to think or behave along certain peer-prescribed guidelines." It takes place "when people your own age encourage or urge you to do something or to keep from doing something else, no matter if you personally want to or not." For Bursztyn and Jensen (2014), however, peer pressure refers to the students who take actions that deviate from what they privately consider to be the optimal action (i.e., what they would do if others would not observe their actions) in order to achieve social gains or avoid social costs from peers. Peer pressure, therefore need not just refer to active efforts or encouragements by peers to persuade others to undertake an action but could also include passive effects such as not undertaking an action for fear of peer social sanctions or to gain peer social approval. (p. 3)

The definitions of peer pressure quoted above are based on the MACAST where an authority such as a specialist in fields such as economy and psychology specifies what cognitive taxa a given schema dealing with *sapiens* consists of. In spite of the apparent differences in their definitions, specialists treat all sapiens as passive peers who have no choice but to comply with "peer-prescribed guidelines" in order to gain "social approval." The MICAST, however, assigns an active role to the sapiens as peers because they either prescribe or approve a set of guidelines in order to actualize themselves collectively.

The items of MACAST-based scales are usually developed by authorities. The 53-item Peer Pressure Inventory (PPI) was, for

example, developed by Brown and Clasen (2014) by resorting to Erikson's (1968) theory of identity. The introductory clause for all the items asks its takers to specify "how strong is the pressure from their friends to," for example, study hard or do their homework by choosing 3) lot, 2) somewhat, or 1) little, 0) no pressure or by *not* to study or not to do their homework by choosing -1) little, -2) somewhat or -3) lot. All items of the PPI are thus authoritative because through the word "pressure," they force its takers to accept that they have no choice but to put up with various pressures brought up in the items.

In addition to developing the items, the MACAST designers of PPI specify what items constitute which cognitive taxa. Clasen and Brown (1985), for example, analyzed the content of their PPI and concluded that its 53 items clustered in five areas, i.e., "peer involvement ..., involvement in school ..., involvement with family, conformity to peer norms ..., and misconduct". Since these areas or taxa comprise the domain of peer pressure, each and all items comprising the domain must relate to at least one of the five areas. An analysis of the statistics reported by Clasen and Brown does not, however, support the existence of such a relationship for all items.

The item "How strong is the pressure from your friends to excel, be really good at something (sports, grades, slamming beers, whatever)", does not, for example, associate with any of Clasen and Brown's (1985) five areas. In sharp contrast to the PPI, each and all items constituting the TPPS describe what the classmates themselves say they do when they have a top peer among themselves. Furthermore, there is no item on the TPPS that does not contribute to the cognitive taxa of the JHSSs' TPPS represented by its six underlying factors, i.e., competing with the TP, debilitated by the TP, envying the TP, hating the TP, following the TP, and doubting becoming a TP.

The MACAST-based designers of peer pressure scales, such as Clasen and Brown (1985), do, therefore, not only leave the peers themselves out when they develop their scales but also specify what features it's constituting cognitive taxa must have. This approach has resulted in ignoring the importance and influence of academic variables whose attainment does exert pressure on students as peers. The most important of these variables, i.e., the ability some students gain through learning a specific course such as the English language as well as all other courses taught at schools and universities, does produce a specific pressure on other students as they try to attain the same ability. It is this very pressure that the TPPS brings up in its ninth cognitive taxon consisting of 120-word types. They describe the three selves who undergo, tackle and contribute to this pressure as the 8th cognitive taxon of species, i.e., non-top students, their top classmates and teachers, respectively.

The JHSSs and UUSs' humanistic taxon of doubting becoming a TP which is represented by the two different cognitive taxa of genus and family, respectively, does, for example, show that both JHSSs and UUSs' non-top peers doubt their ability to become the top student of their class because of two main reasons: 1) they are not respected and praised as much as their TPs are, and 2) they cannot speak and participate in class activities as much as the TPs do. The more the JHSSs doubt their ability to become a TP, the less they achieve in their English language ($r = -.16, p < .01$) and all courses taught in school ($r = -.18, p < .01$). UUSs who doubt becoming a TP achieve lesser than the JHSSs in the courses offered in university because their correlation coefficient between doubting becoming a TP and their GPAs is greater than that of the JHSSs', i.e., $r = -.34, p < .01$.

While doubting becoming a TP is represented by JHSSs' 7th cognitive taxon of the genus, their 6th cognitive taxon of the family represents following the TP comprising items 23, "I ask her/him for help whenever I face problems," 24, "I follow her/him as a model and try to be like her/him" and 27, "Her/his attempts and motivation have made me study more." The UUSs, however, narrow down the scope of their following the TP from 26-word types and three items to 18-word types and two items, i.e., 23 and 24. This cognitive reduction may partly explain the reason for finding no significant relationship between UUSs' GPAs and their 5th-order taxon of following the TP ($r = -.08, ns$).

In contrast to their 3-item following the TP, UUSs' hating the TP correlates significantly with their GPAs ($r = -.12, p < .01$) because it consists of five items, i.e., 6, 10, 11, 12, and 13. The same number of items constitutes JHSSs' hating the TP, i.e., five (1, 6, 7, 15, and 18). The two sets of items do, however, differ from each other in terms of their constituting word types, acceptable loadings and the factors upon which they load. Item 11, "I become jealous whenever teachers pay attention only to her/him," for example, has the highest loading of .79 on factor three, representing UUSs' humanistic taxon of hating the TP.

Among items 1, 7, 15 and 18, which are exclusive to JHSSs' hating the TP, item 18, "I hate her/him and I wish s/he were a normal student," however, loads the highest (.58) on factor five representing the same humanistic taxon. Although JHSSs' hating the TP does not correlate significantly with their GPAs ($r = -.09, ns$), it relates significantly but negatively to their ESs ($r = -.13, p < .01$). These findings indicate that the more the JHSSs hate their TPs, the less they achieve in their English language but not in all the courses offered in the school.

Four out of five items constituting UUSs' hating the TP, i.e., 10, 11, 12, and 13, loaded acceptably on factor three, representing JHSSs' exclusive and humanistic taxon of envying the TP. Among the four items, item 11, "I become jealous whenever teachers pay attention only to her/him", had the highest loading of .72. It is followed by item 12, "Teachers' exclusive attention to her/him bothers me", having a loading of 0.66. Similar to their hating the TP, JHSSs' envying the TP correlates significantly with their ESs ($r = -.12, p < .01$) but not with their GPAs ($r = -.03, ns$), indicating that the more the JHSSs envy their TPs, the less they achieve in their English language but not in all the courses offered in the school.

The first factor representing the second cognitive taxon of the kingdom for both UUSs and JHSSs reveals itself as one of the unique findings of this study. Humanistic psychology refers to this taxon as competing with the TP. For UUSs it consists of 11 items, i.e., 1, 2, 3, 4, 5, 7, 8, 9, 14, 15, and 18. Among these items, only seven, i.e., 2, 3, 4, 5, 8, 9, and 14, constitute the same taxon for JHSSs. Further analysis of UUSs' 11-item competing with the TP shows that its four items, i.e., 1, 7, 15 and 18, contribute not to the JHSSs' 7-item competing with the TP but to 5-time hating the TP.

The differences in the items comprising UUSs and JHSSs' taxon of competing with the TP does, therefore, explain why the taxon correlates with UUSs and JHSSs' GPAs negatively ($r = -.37, p < .01$) and positively ($r = .18, p < .01$), respectively. UUSs do not study hard enough and do therefore acknowledge that indirectly in item 8, "I believe that I can never become the top student of the class." They do, therefore, not only "hate her/him" and "wish s/he were a normal student," as stated in item 18 but also offer the top peer as an excuse for not studying, as stated in Item 15, "because of her/him, I don't try to study as much as I can." In other words, UUSs

defend their inability to compete with the TP through displacement and thus "release their pent-up anger" (Comer, 2015, p. 64) by blaming the TP.

In contrast to UUSs, JHSSs' 6-item taxon of competing with the TP shows that JHSSs do their best in order to "achieve optimal adaptation in the handling of" the TPs through "self-observation" (American Psychiatric Association, 1994, p. 752). According to item 22, loading the highest on the taxon, i.e., .71, non-top students, for example, do acknowledge that their TPs are better than them. They do, therefore, study hard and learn all courses offered in school ($r = .18, p < .01$) in general and the English language ($r = .28, p < .01$) in particular.

Conclusion

The TPPS provides a theoretically sound and empirically valid measure of top peer pressure (TPP) in nine cognitive taxa for JHSSs. The 120-word types constitute the TPP as a schema at its 9th cognitive taxon called word. These types present the distinctive features of the cognitive taxa higher than the word in 27 items. The JHSSs, with their top peers and English teachers, for example, constitute the features of the TPP at its 8th cognitive taxon of species. Among the 27 items constituting the TPPS, items 16 and 17 form the 7th cognitive taxon of the genus for JHSSs, providing the humanistic context of doubting becoming a TP. Items 16 and 17, however, describe UUSs' doubting becoming a TP at the 6th cognitive taxon of the family without assigning any of the remaining 25 items to their 7th cognitive taxon of the genus, showing that the UUSs have narrowed the TPP in its proper context or cognitive taxa.

Undergraduate university students change not only the number of cognitive taxa of TPP from nine to eight but also the number of items that constitute the majority of the taxa. Doing so, they become cognitively disordered and religiously polytheistic. In other words, the UUSs change the context of words in order to suit their personal objectives (Q4:46, Q5:13). JHSSs' 6th cognitive family of following the TP, for example, consists of three items, i.e., 23 (I ask her/him for help whenever I face problems), 24 (I follow her/him as a model and try to be like her/him) and 27 (Her/his attempts and motivation has made me study more). The UUSs do, however, assign item 27 to their 3rd cognitive taxon of phylum humanistically referred to as debilitated by the TP. This assignment is pathological in psychiatry and polytheistic in divine religion because instead of committing their selves to learning courses offered in tertiary education institutions, the UUSs blame the TPs for their low achievement.

Blaming others for their cognitive, psychiatric or psychological and social disorders, as evidenced in the cognitive taxa of TPP, is exacerbated by teachers and educational authorities not only in universities but also in senior high schools. Research findings do, for example, show that because of being largely self-theistic educational authorities in Iran have rendered "students' English language learning polytheistic" (Khodadady & Dastgahian, 2020, p. 8). More research projects are, therefore, required to find out whether the same rendering affects JHSSs when they move to senior high schools. Replicating this study with female JHSSs may also reveal the contribution of gender to the cognitive taxa of TPP.

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Received: 17 December 2022

Revised: 12 January 2023

Accepted: 23 January 2023