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'Just in Time' Concept in Developing Cognitive Skills of Future Economists

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Abstract

This article covers the 'Just in time" concept in developing the cognitive skills of future economists. The science of lifelong learning encapsulates an individual's neurobiology, health; well-being, socio-emotional skills, and learning environment are also analyzed. Not a secret, the profession of an economist requires specific skills and abilities; due to the importance of the data, they provide to be accurate and detailed. In addition, the 'just in time' concept and suggestions for developing cognitive skills in future economics are given.

Keywords: *R&D Investments; ESP; Improving the Quality; Concept; Drawbacks; Economists; "Just in Time" Exercises*

Introduction

In previous decades there has been rising apprehension that the instructions in education which are active in institutions with a major of Economics – particularly in preliminary stages of learning – lacked in integrating advanced teaching pedagogies utilized effectively in other disciplines, hypothetically warning both admission and learner acquisition [1]. Education, by equipping people with skills and knowledge, makes individuals more productive in performing their tasks as well as in adopting and using existing technologies; furthermore, it enables them to generate new ideas that, in turn, foster innovation and technological progress (Woessman, 2016). Similarly, R&D investments and the resulting innovation can boost productivity by improving the quality or reducing the average production costs of existing goods or by widening, the range of final goods or intermediate inputs available (Hall et al, 2010). Due to the principles of the "Just in Time" concept, it straightly reports the two critical topics upstretched by Katz and Becker: the comparative insufficiency of the teaching methods for active learning and the deficiency of creative instructions in the teaching process. Due to the claim of Chickering and Gamson, decent training in student education can be seen in the following factors [2]:

- Inspires student-teacher interaction.
- Reassures collaboration among learners.
- Boosts dynamic learning.
- Provides quick feedback

• High lights time management skills.
• Links to high prospects.
• Respects varied tideland-learning habits.

In short, utilizing the data delivering and instructional competencies resulted in web and web-based course organization tools and an obvious connection of students' academic work with classroom-based learning; the "Just in Time" concept encourages amplified learner input in the education process, affords both students and teachers with rapid feedback on student learning, and inspires better student research for class.

Analysis of the Relevant Literature

The current paper delivers an explanation of the concept of “Just in Time” in ESP teaching, its foundation in well-examined instructive values, and the understanding of the notions of progress, application, and valuation of the "Just in Time" concept within the pedagogy in the sphere of economics. Throughout the target article the question "How well does the concept of "Just in Time" is beneficial?" and "is there any drawbacks of the concept?" will be discussed, based on scholars' opinions and hypothesis. We begin with a very simple earnings model: individual earnings (y) are a function of the labor market skills of the individual (H), where these skills are frequently referred to simply as the worker's human capital. For simplicity in equation (1), we assume that this is a one-dimensional index, although this is not important for our purposes [3].

$$y = \gamma H + \varepsilon$$

The stochastic term represents idiosyncratic earnings differences and is orthogonal to H.

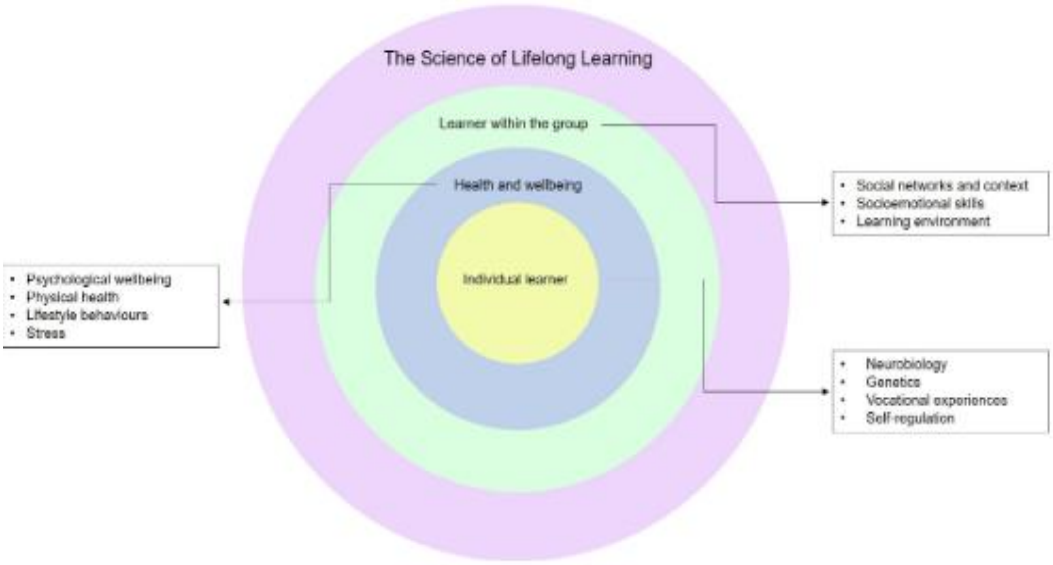

Figure 1. Schematic representation of the biological (individual learner), lifestyle (health and well-, being,) and psycho-socio-emotional and environmental (learner within the group) factors that interact with cognitive processes and learning across the life

The science analysis is the simulation of an individual's neurobiology health and well-being, socio-emotional skills, and learning environment (Figure 1). These factors individually and cumulatively fluctuate over the lifespan and influence learning outcomes and cognitive reserve.

Research Methodology

The report provides a detailed description of those skills [4]:

- Positive attitude: An emotional aspect in which a youth is happy and enthusiastic; a social aspect of encouraging others; and a cognitive aspect of valuing work or school with a positive outlook (Lippman et al., 2015, cited in Gates et al., 2016).
- Responsibility: The ability to understand one's role and reliably accomplish tasks associated with this role, and the belief that one's choices and actions can influence the events in life and lead to positive outcomes (ibid.).
- Goal orientation: The motivation and ability to make viable plans and take action toward desired goals (Lippman et al., 2014a, cited in Gates et al., 2016).
- Empathy: The affective and cognitive ability to feel and understand what someone else is feeling (ibid.).
- Communication: The ability to effectively express and understand knowledge and ideas. Communication includes listening, as well as verbal, nonverbal, and written communication. It includes the ability to negotiate, persuade, transmit, and interpret knowledge (Lippman et al., 2015, cited in Gates et al., 2016).
- Social skills: A cluster of skills necessary to get along well with others, including respecting and expressing appreciation for others, demonstrating context-appropriate behavior and the ability to behave according to social norms, using a range of skills or processes aimed at resolving conflict.

Young people actively participating in exchange programs on education determine the future of the Uzbekistan economy. Therefore, it is especially important to increase their knowledge in the field of money management. The solution to this problem can only be in close cooperation with the state's commercial and financial institutions, educational institutions, and public, organizations that can affect the development of this process in their field. More than a third of the country's population has not taken out a bank loan at all in recent years, fearing a sharp drop in inflation [5].

Based on the above, most Uzbeks manage their funds without the right approach and expert advice. All money issues are resolved over a cup of tea with friends at home. It does not know the delicacies of decisions, just like the owners.

The country's market economy does not stand still, on the contrary, it moves forward at a rapid pace. People's knowledge remains at the old level and does not add up, which is important for the country itself and the economy as a whole.

The public's lack of understanding of these issues is prompting the country's leadership to take drastic measures and all possible ways to improve public education.

However, I hope that the near future shortly yields positive results, and Uzbekistan as a country will become more knowledgeable in terms of the economy of the population. Today, such a program is being introduced in several regions of the Republic but its adoption by the population may face some difficulties [6].

Basic terms are aimed at improving the upbringing of the younger generation. If you rely only on young people, the program will only work effectively for 15-20 years. Then the already mature generation

will independently teach their children financial literacy and good knowledge in this field. The concept of "Just in Time" in the development of cognitive skills of the economy of the future focuses on the following factors [7]:

- Creating favorable conditions for the formation of communication skills;
- Formation of a positive motivational attitude to the economy through the development of cognitive interest and understanding of social necessity;
- Study of normative and methodological documents of the Ministry of Education and Science aimed at improving the financial literacy and financial and economic knowledge of students;
- Acquisition of a system of knowledge about the financial institutions of modern society and the means of personal financial management;
- Acquire the ability to receive and critically understand economic information, analyze the data obtained, and systematize;
- Formation of experience in applying knowledge of financial institutions for effective self-realization in the field of personal financial management;
- To develop students' readiness to make responsible and reasonable decisions in the field of personal financial management, the ability to implement these decisions;
- Formation of cultural foundations and individual style of economic behavior, values of business ethics;
- Develop accountability for economic decisions.

Analysis and Results

At the same time, the test score measures of cognitive skills, as indicated, also have disadvantages. As described, the tests that are given are undoubtedly narrower than either what is taught in schools or what elements are important in the labor market, including non-cognitive skills. This narrowness is clearest when considering individual tests of particular domains of knowledge, such as primary school reading. Most of the available tests are given at the school level, frequently at the end of lower secondary education, so that they do not directly capture variation in higher education (although they may do so indirectly through their predictive power for obtaining further education). Additionally, even as tests of the specific subject matter at the school level, the issue of measurement error in the tests cannot be ignored. The tests may suffer from a variety of problems related to the sampling of knowledge in the particular domain, the reliability of questions, and even the impact of test-taking contest-taking cores. Again, as described above, these concerns generally imply that the estimated effects of cognitive skills will be a lower bound on the impact of improved skills [8].

In addition, the number of graduates of higher education is also growing from year to year, while in 2015-2016 alone it was 66,290,000, and in 2020-2021, the figure was 83,905,000 (Table 1).

Table 1. The number of graduates of higher educational organizations, by region
(at the beginning of the academic year, people)

Regions	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021
Republic of Uzbekistan	66290	64133	67448	70325	70793	83905
Republic of Karakalpakstan	3957	3939	4358	4484	4312	5475
Andijan	3664	4039	4209	4791	4293	4622
Bukhara	3357	3376	3409	3523	3770	4784

Jizzakh	2469	2261	2732	2872	2850	3862
Kashkadarya	2990	3111	3559	3842	3908	5193
Navoi	2166	2097	2197	2300	2374	3107
Namangan	2753	2734	2948	3004	3218	4113
Samarkand	5917	5986	6417	6869	6842	7165
Surkhandarya	1671	1705	1891	1962	2086	3329
Syrdarya	1023	983	986	1014	1045	1632
Tashkent	1837	1797	1745	2710	2787	4041
Fergana	4782	4657	4769	4557	4778	5833
Khorezm	2037	1984	2163	2229	2426	3229
Tashkent city	27667	25464	26065	26168	26104	27520

The number of research projects by type of scientific work is also growing from year to year. The number of organizations engaged in research and development alone was 323, and by 2020 the figure was 254 (Table 2).

Table 2. Research and development projects by type of scientific work (Since one organization carried out several types of work, the sum of the number of organizations that performed research and development by types of scientific work does not equal the total result)

Indicators	2015	2016	2017	2018	2019	2020
Number of organizations that carried out research and development, units	323	437	389	668	304	254
Research work	267	313	284	456	195	195
of which are fundamental	124	133	118	188	113	112
Design and technological	31	31	31	54	28	17
production of prototypes, batches, products (products)	14	20	19	33	16	9
design work for construction	13	10	8	33	6	6
scientific and technical	66	143	118	219	126	91
The volume of research and development and experimental development, million soums	339856,9	426122,9	449905,4	680038,0	853404,4	992029,1
research work	258870,6	292803,5	300254,5	336482,5	535208,9	663152,8
of which are fundamental	53050,2	61487,6	82276,3	89254,2	162804,0	178052,6
Design and technological	19521,5	23917,2	36888,4	38714,0	97641,2	74346,7
manufacture of prototypes, batches, products	1997,3	3086,2	4025,6	7677,9	6318,8	3975,8
design work for construction	30748,8	43750,3	31166	77687,2	54628,9	68252,7
scientific and technical	28718,7	62565,7	77570,9	221205,1	160512,1	182301,1

We define our estimation Model by taking an extended Cobb-Douglas production function (e.g. Griliches, 1986; Mankiw, Romer, and Weil, 1992) as follows [9]

$$(1) \qquad Q_{ij} = A\, L_{ij}^{\alpha_1}\, C_{ij}^{\alpha_2}\, RD_{ij}^{\alpha_3} SKILLS_{ij}^{\alpha_4} e^{\varepsilon_{ij}}$$

where Qij is the output in country i, sector j measured by total value-added, Lij is labor measured by the total number of workers, Cij is physical capital13; RDij is the knowledge capital measured by expenditure in R&D14, and SKILLSij is the average cognitive skills, i.e. the two key variables of interest in our analysis. The parameters α1, α2, α3, and α4 are elasticities, whereas εij is a random disturbance term. Taking logs of (1) we get

$$(2) \qquad \ln Q_{ij} = \ln A + \alpha_1 \ln L_{ij} + \alpha_2 \ln C_{ij} + \alpha_3 \ln RD_{ij} + \alpha_4 SKILLS_{ij} + \varepsilon_{ij}$$

Dividing (2) by the total stock of workers of each country-sector combination, we get our measure of labor productivity defined as

$$(3) \qquad \ln \frac{Q_{ij}}{L_{ij}} = \ln A + \alpha_2 \ln \frac{C_{ij}}{L_{ij}} + \alpha_3 \ln \frac{RD_{ij}}{L_{ij}} + \alpha_4 \ln SKILLS_{ij} + (\alpha_1 + \alpha_2 + \alpha_3 - 1) \ln L_{ij} + \varepsilon_{ij}$$

Using value-added per worker relaxes possible restrictions on constant returns to scale (Hall et al, 2010); the term (α1 + α2 + α3 -1) measures the possible deviation from constant returns to scale. Since only one observation in time is available for the average sectorial cognitive skills, we are limited to adopting a cross-sectional setting [10]. Our measure of average sectorial cognitive skills – which has been computed from the PIAAC micro-database – refers to 2011/1215. However, we use value-added labor, capital stock, and R&D flow values of 2007 (in USD dollars at fixed prices of 1995). First, economic indicators of the year 2007 have not been affected by the crisis and therefore are closer to the current sectorial performances than those from 2011/12 [11]. Second, the WIOD database provides detailed information for a fixed capital stock for 2007; using newer data would have implied a significant loss of observations in our analysis, as years that are more recent contain only a few country-sector combinations [12]. Third, we assume that the average cognitive skills present in a sector are rather stable and do not significantly change in the short time to medium; therefore, the average skills present in a certain sector in 2011 can be considered a good proxy of the average level of skills present in the same sector four years before.

Conclusion

According to some studies, there is a minor, assessable, constructive outcome of perceptive learning with “Just in time” concept-based pedagogy. Nevertheless, the solid urgings for “Just in Time” methods are probably seized in the unit introducing the overall aids of the target concept practiced in the process of assessing this teaching pedagogy [13-17]. We present here the first study at a sectorial level relating the productivity of workers to their skills. The relationship between sectorial cognitive skills and sectoral productivity is found to be positive and strong, especially in high-tech sectors, i.e. in those sectors where innovation is most central. Average school attainment in a sector is not related statistically to sectorial productivity. Nevertheless, R&D investments per worker, capital per worker, and the size of

the labor force in the sector bear a significant relationship with sectorial productivity. Education and the resulting human capital –the knowledge and skills of individuals – may contribute to reaching many goals, which are central to virtually all policymakers' agendas. These include increasing health consciousness, improving tolerance and civics, or reducing crime rates. Beyond these advantages, the evidence that we presented here suggests that the human capital of workers can increase the productivity of the sectors they work in. To the best of our knowledge, all research on human capital at the sectorial level relied on direct or extrapolated measures of workers' school attainment. However, this measure of human capital suffers from two major shortcomings. First, an equal amount of years spent in school can lead to very different quantities and qualities of skills, both across countries and within a country, depending on the quality and the type of schools. Second, skills development continues also after school. In particular, learning at work, through formal training or learning by doing, is crucial to acquire less easily modifiable knowledge, as well as to maintain the skills already developed and to keep up with organizational and technical change.

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