

日本の高等教育における認知能力の欠如 — 言語と内容の二元性を超えて —

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Cognitive poverty in Japanese tertiary education:
The place beyond the duality of language and content—a working hypothesis

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Abstract

現在の日本の高等教育から考えると、学生の認知能力が低いとは考えにくい。しかし、実際は、彼らの認知能力は決して高くない。つまり、学生達は高等教育に必要な根本的な能力が不足している。それはどの国籍の市民でも、国籍に関係なく高等教育を受けているものであれば、持っているべきものであるということは論議の余地はない。本研究論文では、現在のこの認知能力が十分備わっていない状況を述べる。そして、本文における対話は、現在の状況を軽減させる過程を意図しており、アンドラゴジー的、文化的、社会的背景を踏まえている。

Key Words : アンドラゴジー 教育理論 高等教育

I. Introduction

Cognitive poverty refers to both a state of bereftness or lacking with regards to an individual's cognitive functions (cognition), and their capacity to automatically engage in higher-order thinking and work with higher-order skills for both specific (direct), and non-specific (indirect) purposes. Cognitive skills, on the other hand, are neither geographical, nor race-specific, rather, they are a general set of skills which it would be assumed, nay, advisable for any literate individual, enrolled in global higher education in the current post-postmodern epoch, to possess, irrespective of nationality, race, or gender; they are the building blocks of academia, and global academic discourse, and are documented in the appendices (Fig. 3).

This working paper presents an hypothesis which postulates that currently, in Japanese tertiary education (and by extension, Japanese society), there is much cognitive poverty, despite positive economic and social factors which could and perhaps *should* render the situation otherwise. Rather than being drawn into the current language/content debate du jour between the competing paradigms, debate which has little or no meaningful impact or chance of reaching a consensus or resolution. This paper argues instead, that much closer attention should be paid to cognitive poverty, and such discussion needs to be directed at both the programmes discussed through the lens of the language/content dichotomy, and the actual

student body, especially when developing curricula and syllabi, or formulating learning aims, objectives, and outcomes. That graduating students' cognitive prowess should be of primary importance, irrespective of their academic field of specialism. So that when Japanese students graduate from university, in addition to their specialist academic knowledge, they should also be furnished with the cognitive skills which will enable them to fully participate in an increasingly volatile and complex global marketplace as global *jinzai*. These skills are, however, not 'language-based' as Dalton-puffer states (2011: 184), rather, they should be seen primarily from the perspective of cognition.

II. Perceived deficiencies and core problems

When the author returned to Japanese tertiary education, after a break of nearly 5 years working overseas, they were concerned to be confronted by the stark deficiencies between Japanese students and English speakers from other nations which they had encountered both studying in the UK, and in China. These deficiencies, however, were not merely linguistic in nature, rather, and most notably, they were cognitive. It appears that Japanese tertiary students' ability to think, not just *outside the box*, but *inside the box* too is extremely bereft: that simple cognitive or critical tasks prove taxing or impossible (in both their L1 and L2). At the structural level, reasons for these deficiencies can be identified as: i) an over emphasis by Japanese faculty on language skills to the detriment of critical skills and higher-order thinking, ii) a misunderstanding as to the function and purpose of tertiary education in general, notably how this fundamentally differs from delivery at the primary and secondary stages, and iii) a general inconsistency with the subject/content delivery when compared to that delivered by programs overseas, notably the authors primary experience in Northern Ireland, England, and China.

As a developed nation with the world's third largest economy, Japan has some of the highest literacy rates in the world. The OECD (2014) reported that "the proportion of tertiary-educated adults in Japan increased from 34% to 47% between 2000 and 2012 and is now the second largest proportion among OECD countries." As of 2018 that still stands (OECD, 2018:2). That noted, however, as Brown & Adamson (2012: 7) point out, this study occurs in the domestic sphere with study abroad programmes show longitudinal decline, "falling by more than 20% between 2000 and 2010." For an advanced nation with high levels of literacy, education, and wealth, coupled with advanced industrialisation and mechanised excellence, Japan has a remarkably low rate of Nobel Laureates (26) when compared with other G7 countries, notably the United States (368), the United Kingdom (132), Germany (107), and France (62). It bests Canada and Italy, but only marginally. This data is all the more revealing when one considers that 3 of these recipients were not Japanese citizens[1], and that of the original 26, more than half of the prizes (15) were shared with a non-Japanese researcher, meaning that since 1901, only 5 were won by single Japanese, and 4 by Japanese groups (The Nobel Foundation, 2019). Furthermore, as Takamitsu (2017) noted in the Japan Times, this situation is echoed by the extremely poor standing of Japanese universities in Global academia, where the Times Higher Education (THE) World University Rankings 2018, "shows a

continued decline of Japanese universities - with only two of them, the University of Tokyo (43rd) and Kyoto University (74th), ranked among the world's top 200 institutions." Whilst this is by no means conclusive evidence to support the position that cognitive poverty is systematic in Japanese tertiary education, these factors certainly point towards that direction. In retort, it would be easy to argue that the problem here is a linguistic (the academic global language being English), or that the metrics are somehow imperialistic in nature, but this over-simplification misses the point, for since the Meiji period, Japan has sought access to the world's best minds, research, and technologies and has had the wealth to procure this in many different languages and numerous forms, which it continues to in some areas, e.g., sport.

III. Reasons for the situation

The author postulates that a triad of reasons exist for some of the current problems in Japanese tertiary education, these are: i) the lack of non-Japanese input, the lack of power in the domain of non-Japanese faculty throughout the education process, ii) the learning style - rote memorisation, read and repeat, translation &c, and iii) cultural baggage. Firstly, despite the will of MEXT (2015), and despite its mandate to increase the number of non-Japanese faculty by 1500 (Mulvey, 2017: 36), numbers of full-time non-Japanese faculty employed in the Japanese tertiary sector remains so low, that even if MEXT managed to bring in these 1500 non-Japanese faculty, the total number of non-Japanese faculty would still not reach 6% (Mulvey, 2017: 43). Non-Japanese experts bring with them, not only linguistic excellence, a variety of Englishes, but cultural and pedagogical insights too, and with regard to the discussion of cognitive poverty, it is this absence of a wider, more international input which has clear and departmental ramifications. Ironically, one of the metrics used in global academic rankings is the ratio of international faculty, hence, if MEXT achieved its noble aim, not only might this influx help in the fight against cognitive poverty, but the global standing of Japanese universities might also increase. Secondly, the predominant learning style in Japan is either an archaic 'transmission' system based upon a top-down or didactic process mostly aimed at furnishing students with digestible facts to be stored in their short-term memory (STM) for standardised tests or 'licenses,' or it is a line-by-line translation method (Japanese: *yaku-doku* 訳読、やくどく). Although the *kan-ji* for education, *kyou-iku* (教育) contains the elemental part, *soda-tsu* (育つ) meaning to raise, or bring up, much Japanese education has nothing to do with such noble aims, or with emancipatory or conscious-raising paradigms à la Friere, Giroux, McLaren or Dewey. Finally, Japan is dominated by many cultural and social constructs which are often manifested lexically through idioms, phrases, and sayings. Arguably two of the most ingrained and dominant phrases which both define and shape Japanese society and thus, Japanese education, are in the author's opinion, *ishi-bashi wo tataite wataru* (石橋を叩いて渡る) [strike the bridge before crossing i.e. check it is safe to cross, don't just cross], and *ishi no ue ni mo san nen* (石の上にも三年, いしのうえにもさんねん) [if you sit for three years on a rock, you might heat it up]. These two idioms can be read positively from the standpoint of caution, sacrifice, and subjugation, or they can be perceived as dilatoriness, apathy, and inactivity. Regardless, the commonality for all of these constructs is the embedded notion of (depending upon one's standpoint)

patience or procrastination. Regardless of one's interpretive standpoint, the fact remains, however, that the two expressions cited above are about waiting and inaction. When it comes to tertiary education the ideas expressed in the above idioms translate to an air of perpetual practice, a lack of intrinsic motivation and forward motion, with emphasis placed not on the act of *doing*, but on *not doing*.

IV: Approaching the root of the problem: Examining the function and purpose of higher education

Missing from the literature on Japanese tertiary content-based education through English and JEFL is discussion on the function and purpose of tertiary education itself. Without such discourse it is impossible to establish any robust framework for considering either implementation or evaluations of specific learning and teaching methodologies regardless of whether one's weight lies with language e.g. English for Academic Purposes (EAP), English for general Academic Purposes (EGAP), Content-based Instruction (CBI), with content, English as a Means of Instruction (EMI), or a mixture of the two, Content and Language Integrated Learning (CLIL). Fundamental to any discourse has to be the recognition that irrespective of teaching bias, we are ultimately discussing *education*. Education is not the bi-product of language learning or content we need to return to source and critically examine the role, purpose, and function of tertiary education in Japan, before deciding upon appropriate theoretical frames to undergird relevant teaching methodologies which will realise the aims and needs identified within any given discipline.

Within the sphere of general education, irrespective of level, the most prominent taxonomy for examining higher order skills, or higher-order thinking skills (HOTS), is Bloom's 1959 taxonomy, revised in 2001 by Anderson and Krathwohl. These two taxonomies are shown in the appendix (Fig. 4). The problem with these taxonomies is that they are extremely limited in scope and focus primarily on the transition between lower and higher-order skills, as though the endgoal is to work one's way up the scale to arrive at a final skill (evaluation). This aside, as there is no cohesive definition for what the role of tertiary education (globally) should be, how this transition is to be done, and to which sphere of education this taxonomy applies. Clearly Bloom et al cannot be postulating that these five skills, and the order of acquisition remain constant from childhood to adulthood throughout all academic disciplines? In light of this, and given the exploratory nature of this ongoing research to examine both root causes and potential resolutions of cognitive poverty in Japanese tertiary education, the author has, after drawing on both the literature and their own twenty-year experience in tertiary teaching, come to form a working model which currently would include the following sixteen tenets, as a taxonomy of higher-order skills: i) **Problem solving**, and **Rationalisation**, ii) **Critical thinking**, iii) **Learning for transfer**, iv) **Critical Discourse and deconstruction**, v) **Analysis**, vi) **Synthesis**, vii) **Creativity**, viii) **Criticality**, ix) **Autonomy**, x) **Multiplicity/heterogeneity**, xi) **Metacognition**, xii) **Abstraction**, xiii) **Inference**, xiv) **Pattern Observation**, xv) **Original conception**, and xvi) **360° thinking**. Although the limitations of this paper precludes further expansion of these tenets, their role in meeting the aim of enhancing cognition and alleviating cognitive poverty should be self-explanatory.

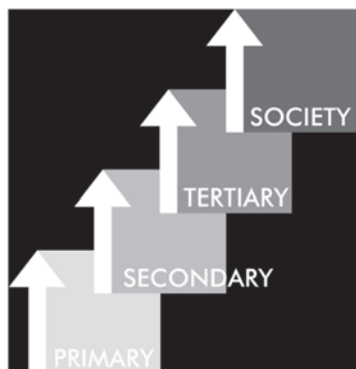


Fig. 1: The steps or spheres of education. This graphic clearly demonstrates how the three sectors build upon each other culminating in the student entering society

Further deficiencies in the literature are how and where tertiary education fits within the general continuum of education, and the relationship between input and output. With the continued over-emphasis on *pedagogy* not *andragogy*[2] (Knowles, 1973, 1978), and the elementary methods of instruction, clear evidence can be found to explain why cognitive poverty exists in the Japanese tertiary sector. Likewise, in the primary and secondary stages of education the student-learner needs considerable more input to gain the building blocks of language such as vocabulary and grammar, however, as they progress from being an extrinsically motivated students engaged in pedagogy, to an intrinsically motivated young adult engaged in andragogy, so the emphasis of input and output needs to be constantly re-aligned. Clearly, it is through sustained output that a student hones their higher-order skills, and if a learner is locked into a didactic, read & repeat model of inculcation, then it can be no surprise that their higher-order cognitive faculty fails to develop and students remain cognitively bereft.

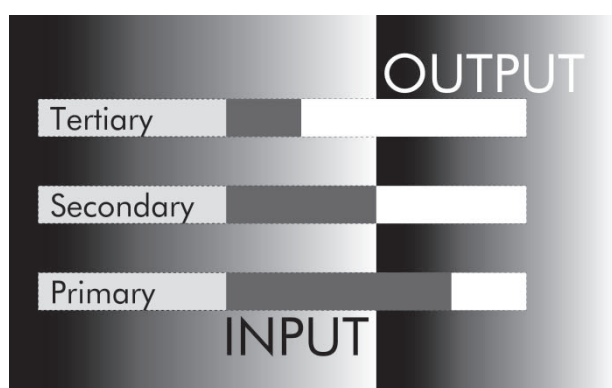


Fig. 2: Graphic depicting the hypothesis of input/output ratio. In the primary sector the focus is on input with minimal output, whereas in the secondary sector there starts to be a balance between input and output, and finally in the tertiary sector there is a further shift which emphasises output over input. Of course, in all of these three realms there is never a completely dominant mode.

Finally, another problem is the function and purpose of 'English' or content-based education through the medium of the English language. When discussing language use with Japanese students, the verb most commonly encountered is 'practice.' In the same way they might practice tennis or baseball, Japanese students often describe 'practicing' English. This linguistic slight is actually very telling, because rather like the phrase 'touch culture,' *practicing English* alludes to an extrinsic relational dynamic with the subject, one which is not penetrated, but observed and fetishized from afar.

V. Discussion

For entry into its undergraduate programmes, the University of Cambridge requires "a minimum overall grade of 7.5, usually with 7.0 or above in each element, achieved in one sitting" (Cambridge, 2019). The University of Nottingham, a much more modest establishment still requires an IELTS score of between 6.0 and 7.5 for its undergraduate programmes (The University of Nottingham, 2019). If students are not in possession of a sufficiently high IELTS score then they will enter the university's pre-sessional or remedial English stream and study English through EAP until they have sufficient skills to pass the required level of aptitude and transfer to the mainstream programme. Here they receive the teaching of content (the subject of their degree) through the medium of English. Outside of degrees in English Literature, British universities, do not offer degree-level courses in "English." Instead, British degrees focus on a major being engaged with via English. English is simply the conduit through which the subject matter is conveyed and processed, but this could just as easily be Polish or Arabic. English is the "medium" of instruction, not the "object" of instruction (Walkinshaw et al, 2017: 2). In Japan, however, many students graduate with a degree in 'English' - that is they essentially graduate with a degree in English conversation (英会話, えいかいわ). This, despite the fact that as Mulvey (2017: 35) notes, the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) policy, has, since 2008 been promoting "Learning *through* English" (emphasis added) - (Japanese: *eigo wo tsujite*, 英語を通じて、えいごをつうじて). Despite this mandate, most Japanese students who study 'English' at university spend 4 years studying what is essentially a form of EAP or EGAP, focusing most on oral output. If, however, all they want to do is to speak English fluently, they might be better off attending a specialist language-focused course such as ECC's *sen-ka* (専科, せんか) which offers an intense four-skills EAP programme completed in one year.

VI. Conclusion

Compared to previous generations, current Japanese society seems marked by a sense of withdrawing and stagnation, and society seems less and less interested in the world. As Hashimoto notes, "Japan has been confronting a lengthy recession and stagnant economy for almost a quarter of a century (2017: 15). Perhaps partly prompted by this, by a declining population, and by China's economic growth, Japan has lost its place in the world. A far cry from the futurism of *showa*, there now seems to be a sense of fear and trepidation in moving forward, and a lack of belief in the future, something which seems to have filtered down and infected Japanese tertiary education. The respectable Japanese traits of patience and reserve, (Japanese:

en-ryo, 遠慮, えんりょ) seem to have congealed into procrastination and risk-aversion, and this cunctation seems to have in part propagated and championed the ideas of practice (Japanese: *ren-shu*, 練習, れんしゅう) and preparation (Japanese: *yo-shu*, 予習, よしゅう). The Japanese student seems to have been 'trained' rather than 'educated' (Widdowson, 1984: 17), and it often seems like the notion of form, *kata* (型, かた) or repetition is more important than the actual goal being worked towards, the destination subjugated to the journey, as it were. This idea also sits with the Japanese concept of pretending or 'putting it on' (Japanese: *fu-ri*, 振り, ふり), that is to infer that it often appears that students are pretending or going through the motions of receiving a higher-education, sitting it out before they enter the workplace, rather than actually trying to enhance their cognitive faculties, raise their critical consciousness and (hopefully) achieve their targets in whichever domain they study. In Japan, the constant and obsessive practice and rehearsal (of language, dance, or music) eclipses the actual reason why the learning was instigated and is taking place. In the case of English education and perhaps education in general, the constant 'learning' (input) and lack of 'use' (output) has reduced learning to a notional or performative practice hence the lack of cognitive or high-order skills and the prevalence of cognitive poverty.

Notes

[1] ISHIGURO, Kazuo (literature, 2017) is a British citizen and both NAMBU, Yoichiro (physics, 2008) and NAKAMURA, Shuji (physics, 2014) are American citizens.

[2] Andragogy refers to the teaching of adults, unlike pedagogy which refers to the teaching of children

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Appendices

i	Problem solving (Nitko & Brookhart, 2007) Rationalisation	ii	Critical thinking (Norris & Ennis, 1989)
iii	Learning for transfer (Anderson & Krathwohl, 2001)	iv	Critical Discourse, deconstruction
v	Analysis (Bloom, 1959)	vi	Synthesis (Bloom, 1959) Especially Application of (abstract) theory or themes from diverse or seemingly tangential fields
vii	Creativity , including the ability to read or present data in alternative or non-linear forms	viii	Criticality (including informed skepticism)
ix	Autonomy (intrinsic enquiry)	x	Multiplicity/heterogeneity
xi	Metacognition	xii	Abstraction (including abstract extrapolation)
xiii	Inference , the ability to infer or make educated guesses	xiv	Pattern Observation (especially that which is abstract or non-obvious)
xv	Conception , being not only able to understand the complex ideas of others, but also to be able to formulate original ideas of one's own	xvi	360 degrees thinking , the ability to spin a problem or idea through 360 degrees and view it from all angles in order to find unseen solutions

Fig. 3: What the author considers to be within the range of higher-order skills to be engaged with in tertiary education.

Bloom's Taxonomy (1956)	Revised taxonomy (Anderson & Krathwohl, 2001)
Evaluation	Create
Synthesis	Evaluate
Analysis	Analyze
Application	Applying
Comprehension	Understanding
Knowledge	Remembering

Fig. 4: Higher-order skills according to and derived from Bloom's taxonomy