

Improving Graduate Employability by Using Social Networking Systems

Zhe Jing (James)
CBS-DEBII
Curtin University of
Technology
Perth, Australia
J.Jing@curtin.edu.au

Elizabeth Chang
CBS-DEBII
Curtin University of
Technology
Perth, Australia
Elizabeth.Chang@cbs.curtin.edu.au

Omar Hussain
CBS-DEBII
Curtin University of
Technology
Perth, Australia
O.Hussain@cbs.curtin.edu.au

KL Chin
CBS
Curtin University of
Technology
Perth, Australia
KL.Chin@cbs.curtin.edu.au

Abstract— In a recent decade many universities responded to challenges of the internet penetration into the society and economics by simply adding computerized facilities to their existing curriculum services as their e-learning strategy [3] so that the traditional teaching and learning model could be preserved. This e-learning strategy deployment is now being challenged by the emergence of Social Networking System/Site (SNS). In order to evaluate how SNS would have affected current Higher Education System (HES), one needs to look into the inner working of value exchange within a broader societal community to extract relational interactions among its participating components (entities), and substantiate what had been challenged internally of a community to prepare for the external intrusion of SNS in a foreseeable future. In this paper, a triple-entity learning community framework is proposed with its Core Value that glues the participating entities together (Figure 5). Prior to this framework, graduate’s employability issues as part of the Core Value are brought to the surface to help educators revise their existing e-learning strategies, so that curriculum content providing educational resources to its clients will be serviced in a more timely and responsive manner.

Keywords— SNS*; HES*; e-learning; Core Value; employability

I. BACKGROUND

Julita [16] raised that today’s teens and people in their twenties are dubbed as “Digital Natives” - the ones who have been cradled in technologies; the ones who did not know the world before internet and social networking sites. It makes sense that university students nowadays are more informed about what they are expected from future employment through peer/external SNS-subscriber’s visions and experiences than their father generation, institutionalized education service as much as what a university had planned out for them can no longer bring gratification. In some cases even, a revelation of incompetence at delivering what is being needed the most will dominate their minds. Failing to answer this call would give rise to disappointment about the irrelevance of the course they are studying, and most likely this will trigger an avoidance of information from schools and an increase of cognitive dissonance [20]. If it persists, eventually a worst-case scenario will develop - psychological discomfort toward the education system in general. The result: a damaging reputation on the

whole education system/sector around the world. The credibility that the students’ degrees in terms of the ability they acquired from universities to get employed is therefore, of critical concern to various stakeholders, and of course to the major subscriber of higher education service – students.

Although it’s been a heated discussion on HES’s objectives to deliver graduate quality of whether it should be academic-oriented, industrial-oriented, both or something else is at its moot point at the moment [1]. To probe on the nature and properties of graduate quality requires multiple domains of knowledge and critically educational experience, much work had been done to substantiate its tangible value so that it can be readily perceived and followed by various stakeholders at various levels of engagement. Arguments about its nature roughly form into a binary school of belief: academic and industrial. In the following sections, we will examine various perspectives based on previous literatures in order to summarize perceptions of such quality to form a core value conception in a triple-entity learning community framework.

II. PERCEPTIONS OF EDUCATION IN GRADUATES/STUDENTS/EMPLOYERS

A. Traditional Graduates’ Perception

In 2008 Graduate Pathways Survey, graduate respondents were asked to identify how bachelor-degree education should be improved in order to enhance their employability and skills. The following table shows a list of specific areas for improvement:

TABLE I GRADUATES RANKED SPECIFIC AREAS FOR IMPROVEMENT

	Importance
1. Use real-life case studies in learning	85
2. Ensure that teaching staff have current workplace experience and knowledge	84
3. Introduce more fieldwork, placements and internships	82
4. Make assessment more real-world and problem based	78
5. Focus more on developing capabilities needed for professional success	77
6. Enhance careers advice	71
7. Have greater focus on skills like reading, writing,	68

speaking and problem-solving	
8. Enhance students' participation in learning	67
9. Increase interactions between students and academic staff	66
10. Encourage students to study specific areas of interest in greater depth	64
11. Develop more supportive learning environments	64
12. Train staff to better understand learners' needs	64
13. Challenge students to achieve high academic standards	61
14. Enhance the convenience of study	59
15. Offer more enriching experiences and activities outside of class	58
16. Have fewer lectures and more seminars, workshops and symposia	55
17. Increase interactions between students	54
18. Encourage students to study across a wider range of areas	54
19. Increase interactions between students and support staff	52

(Coates & Edwards 2009; p.52)

- Top 5 ranked importance have features that reflect the graduates' perception that more realistic work-related content in their enrolled disciplines should have been emphasized to secure a better "graduate to workforce" transition;
- Middle-ranked importance (6-14) assembles the not-so-fully met need: more interpersonal and communication skills, continuous learning attitudes, techniques and commitment;
- Other lower-ranked importance (15-19) can be deduced to another common perception of not having had enough hands-on experience during their study which calls for a decrease of theoretical lectures and an increase of problem-solving based tutorials and more teamwork skills development interaction in the future.

B. Newly Graduated/Current Students' Perception

All of these abovementioned perceptions are roughly in consistency with the findings in another report - University & Beyond 2008 Report, especially in coincidence with some of the graduate's attributes/employability skills perceived by graduates in this report:

TABLE II IMPORTANCE OF SKILLS AND PERSONAL ATTRIBUTES TO GRADUATE EMPLOYERS BY DOMESTIC STUDENTS, 2008 (RANK)

Skills and attributes	Students, U&B 2008 (Very important rank)
1. Attitude, drive and commitment	1
2. Interpersonal and communication skills (written and oral)	2
3. Teamwork skills	3
4. Critical reasoning and analytical/technical skills	4
5. Emotional intelligence	5
6. Leadership skills	6
7. Academic qualifications	7
8. Work experience	8
9. Cultural/social alignment and values fit	9
10. Activities - includes both intra and extra curricular	10

(Caroll 2009; p.51)

C. Employers' Perception

A frequent comment of Australian employers is that universities should give greater attention to ensuring that practical work (including work-integrated learning) for students is encouraged and new opportunities explored, where necessary, to assist students to gain practical experience so that they are more 'work ready' when they graduate. For a more local example, AUQA (Australian Universities Quality Agent) recommended in its 2009 report for Curtin University in Western Australia, Curtin should consider additional ways to assist students (locally and offshore) to gain practical experience or locate work placements [17].

Other graduate survey reports also present what the employers' perceptions toward graduates are in a non-cash term of graduate expectations of employment benefit. The following figure taken from U&B 2008 report indicates a clear difference in perception toward a first job between a graduate student and an employer:

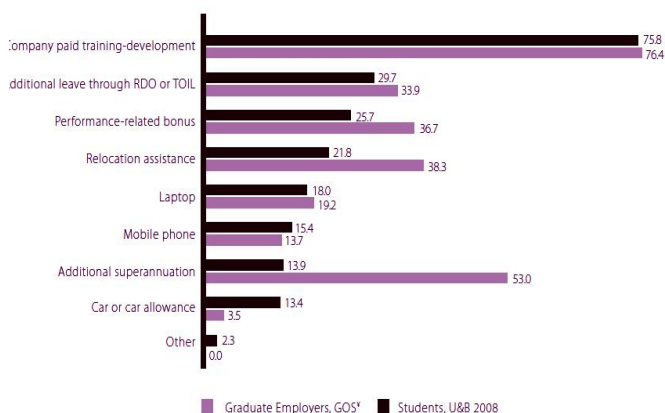


Figure 1 Non-cash benefits expected to be offered in first job after university, domestic students, graduate employers, 2008 (%) (Graduate Careers Australia) (Caroll, 2009; p.33) *GOS^y - Graduate Outlook Survey

Top two ranked non-cash benefits by employers are "company paid training development" and "additional superannuation", this perception indicates these two cost-related aspects of business is what employers believe to be the benefit of their newly recruited, this perception has got its root in a typical business philosophy: given the revenue stable, saving cost means indirectly increasing profit in business sense, especially under circumstances that economic downturn is still on its way of recovery.

On the other hand, second ranked benefit - additional leave - by graduates reflects their concern about work-life balance, an anxiety of losing one's identity after joining the workforce could be an underlying psychology behind the scene.

Nevertheless, top ranked benefit remains in consistency with that perceived by their counterpart. So the question raised here is: is there a way to cut the cost of training/recruitment for the employers at all, so that both employers and graduates can spare their effort in work-life balance aspect of employment?

One suggestion would be put employers' training fund on targeted graduates as early as possible, not necessarily has to be a lump sum investment but a systematic stream of care fund through a student's years in university.

III. TRADITIONAL UNIVERSITY CHALLENGES

A. During Academic Years

The traditional university education system specifically in the field of ICT areas is already facing the global challenges of declining interest demonstrated by the low student enrolment and the increasing un-employable graduates in Industry and Commerce [7]. Because computerized social networking systems had already been implemented as a basic social infrastructure for modern society, and what students of such specialty had learnt is already made available 24/7 elsewhere on internet, the value of their enrolled subjects in ICT drops accordingly. As a result, the number of students enrolled in this discipline had been reduced annually.

B. After Graduation

From a working graduate's perspective on their bachelor degree – one of the primary services prescribed to students by universities, especially in the field of ICT, we discovered that due to the ever-updating nature of this emerging field of discipline, the current curriculum content tends to be regarded as irrelevant and outdated more significantly than the other disciplines, the following figure shows considerable variation among fields such as engineering, education and IT, graduates from these disciplines tended to see their bachelor degree as less relevant to further study than did graduates from science, humanities and health degrees:

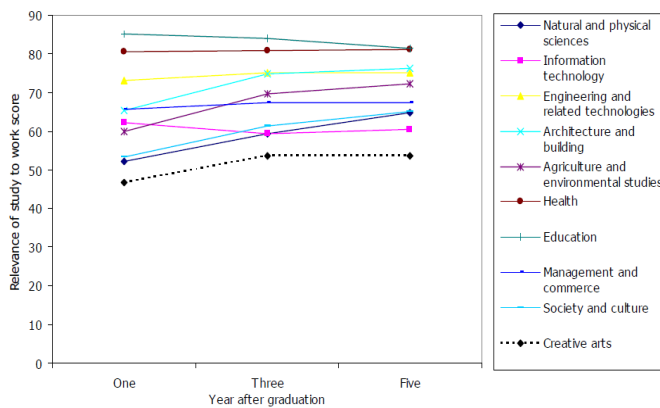


Figure 2 Relevance of study to work by field of education (Coates & Edwards 2009; p.51)

Again, in comparison with the related finding from another

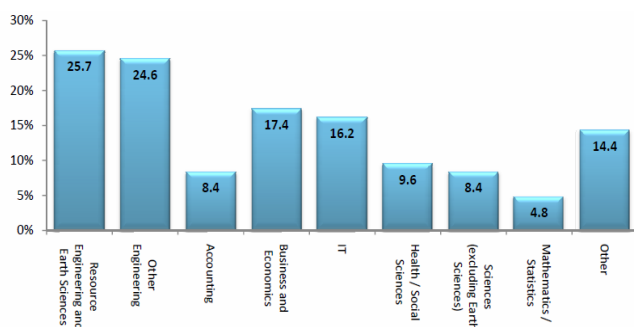


Figure 3 Proportions of employers who had difficulty sourcing university graduates, by discipline area of graduates, 2008 (%) (Bryant 2009; p.12)

graduate survey report – Graduate Outlook 2008 – as is shown as the figures below:

Some concerns regarding several disciplines are brought to our attention:

- Courses for engineering, business and IT/ICT tend to have less relevance to their works in 5 years time than those of other disciplines;
- Employers of related industries tend to have more difficulties in sourcing graduates from engineering (50.3%), business (25.8%) and IT/ICT disciplines (16.2%);
- Therefore, graduates from engineering, business and IT/ICT disciplines tend to have lower success rate in securing specialty-matched jobs than other disciplines shown in above figure and graph.

IV. GRADUATE STARTING SALARY VS AVERAGE WEEKLY EARNING

After collecting historic data for Australian graduates' median starting salaries (GSS) and annual rate of average weekly earnings (AWE) from 1977 to 2008 (Table III), an investigation on GSS/AWE in percentage reveals a slightly worrying image (Figure 4) under the surface of steady growth for both GSS and AWE annually:

TABLE III ANNUAL RATE OF AVERAGE WEEKLY EARNINGS (AWE) AND MEDIAN STARTING SALARIES FOR BACHELOR DEGREE GRADUATES (GSS), 1977-2007.

Year	AWE (\$,000)	GSS (\$,000)	GSS/AWE %
1977	9.6	9.6	100.0
1979	11.3	10.9	96.5
1980	12.5	11.8	94.4
1981	14.1	13.2	93.6
1982	16.5	14.9	90.3
1983	17.8	15.9	89.3
1984	19.6	17.2	87.8
1985	20.5	18.2	88.8
1986	22.1	19.8	89.6
1987	23.3	20.9	89.7
1988	24.9	23.0	92.4
1989	26.8	24.0	89.6
1990	28.7	24.9	86.8
1991	30.0	25.3	84.3
1992	31.1	25.7	82.6
1993	31.8	25.5	80.2
1994	32.5	26.0	80.0
1995	33.9	27.0	79.6
1996	34.8	28.0	80.5
1997	35.7	29.0	81.2
1998	37.2	30.0	80.6
1999	38.0	31.0	81.6
2000	39.2	33.0	84.2
2001	40.8	35.0	85.8
2002	42.9	35.5	82.7
2003	45.1	37.0	82.0
2004	46.6	38.0	81.6
2005	48.9	40.0	81.8
2006	51.2	40.8	79.7
2007	53.7	43.0	80.1

(GCA 2008; p.7)

As the GSS and AWE grows steadily annually, the GSS/AWE roughly shrinks from 100% to 80% (Figure 4), this

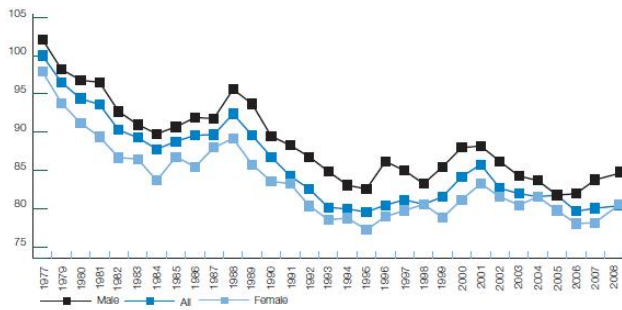


Figure 4 Male, female and all graduates' median starting salaries relative to the annual rate of male average weekly earnings, 1977-2008 (GCA 2008)

discrepancy could be reasoned with various direct and indirect causes such as

- Job creation;
- Nation-wide economic fluctuations;
- Market changes;
- Employers' confidence toward graduates decreases.

The slight shrink in GSS/AWE ratio can serve as a predictable trend to examine graduate employment, despite annual increases in both categories, the relative weight of graduate starting salary (GSS, a critical factor to reflect employer's willingness to employ personnel) to their supposed salary (AWE) is shrinking, in another word, employers' confidence toward graduates quality seems to have decreased over the years and continue to do so more probably in the coming years given the fact that the market is still recovering from financial crisis at the moment.

In academic circle, graduates quality possesses various properties; graduates' attributes is certainly one of them, which in an exchangeable term, can be deemed as a set of employability skills. It eventually leads us to the scope of this research since it is more related to the proposed changes that need to be put in place in a HES curriculum content development context to help improve the status quo of it.

V. PROBLEMS WITH CORE VALUE

To sum up the problems found previously and to visualize what Core Value behave in this proposed triple-entity learning community, an illustration is shown in Figure 5:

Like any other directed-network systems, the learning community model which this paper proposes is invariably comprised of nodes (entities) and directed connections (relations), based on this simplified assumption, we take three entities (namely, Universities, Students and Industries) to represent major entities involved in this closed learning community, similar to any existing social communities, components of this community model needs a common code to live by, thus a centre piece to represent such communal code named as Core Value hereafter is placed as a centre

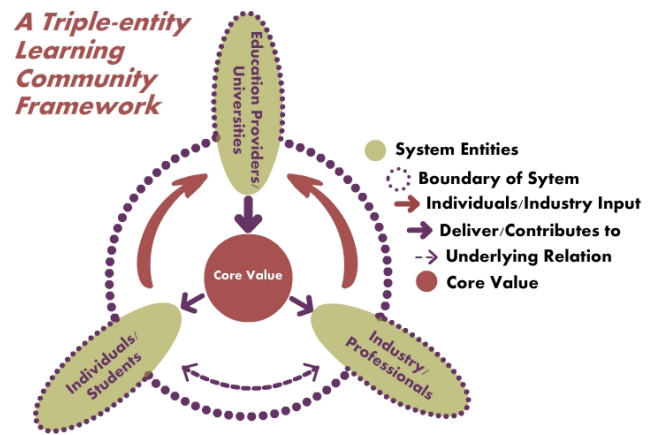


Figure 5. A triple-entity learning community (Jing 2009; p.8)

piece to bring communal entities together into a value exchanging cycle.

Components of this model such as the directed arrows and dotted border are drawn to set up a closed environment for the entities to live and interact within. The community itself is basically a dynamically balanced/looping system that perceived value by entities keeps exchanging among them. Arrows (red) directed from one entity to another is regarded as input, e.g. students put their money to higher education provider in an exchange for their future well-being of actualizing their prescribed educational value; industries invest their funds in higher education providers in order to harvest well-educated individuals to be their future work-ready employees; as for students to industries, the double directed/dotted arrow (dotted purple) represents an expectation that bypassing the education service provider as a middle man is "by default" desired by both entities but not currently realizable given each of their individual/social constraints. The output is represented by another color of directed arrows (purple) which indicate interactions between Core Value and entities.

Topologically speaking, in order to connect all the entities within the community efficiently, nodes are required to be linked on a directed path where a non-recurrent continuous value exchanging cycle could be formulated. Having trialed all possible cycle paths, it makes obvious sense that Core Value should be the only starting point to prevent recurrence of nodes in a single run. Our previous investigation on Core Value did exactly that to comply with this pattern.

In summary, to manage the sustainability of such community, its Core Value has got the following aspects to be taken proper care of:

- Core Value should be regarded as a bundle of expectations plus the very reason of existence of this community, one of the common social expectations is that graduates should be industry-ready or employable as soon as their enrolled specialty is completed;
- It should also be a legitimate public demand to realize social/individual return (finding and securing a full-

time job after graduation) on their education investment (tuition fees) based on this belief;

- Thirdly, as its very existence is being challenged by a new mode of learning: internet-based higher education on demand, competing with it not only in student source, but also in graduate employment placement areas, value-adding actions are to be taken.

Therefore, based on previous findings of the problem-driven nature of Core Value, employability stands out as our primary target to tackle.

VI. EMPLOYABILITY

Problem with employability is that it is such a versatile term that serves multi-contextual purposes.

- For employers, it measures a person's capability of gaining initial employment, maintaining employment, and obtaining new employment if required [2];
- For individuals, employability depends on the knowledge, skills and attitudes (KSAs) they possess, the way they use those assets and present them to employers, and the context (e.g. personal circumstances and labor market environment) within which they seek work;
- For educationists, this term can be interpreted both as crucial graduates' attributes and competence-based skill sets.

Employability Skills Framework proposed by Australian Chamber of Commerce and Industry (ACCI) incorporated a new set of personal attributes to perfect their previous framework of key skills, because how to get personal attributes out of the too hard basket and incorporate them in a systematic way, into teaching, assessing and reporting, will provide a challenge to educationists that will question the core of what they are doing, and by bringing these attributes to public attention would prompt education sector to react accordingly.

In this proposal, it is defined as a crucial part of Core Value in HES, because all three claims previously stated have got each of their own focus on individual's attributes though different role-playing, i.e. students, graduates and future employees. Therefore, the value sourcing leads to a common platform from which interacting entities of the educational/learning community can bond upon. The following figure assembles a highly simplified version of the proposed framework based on employability:

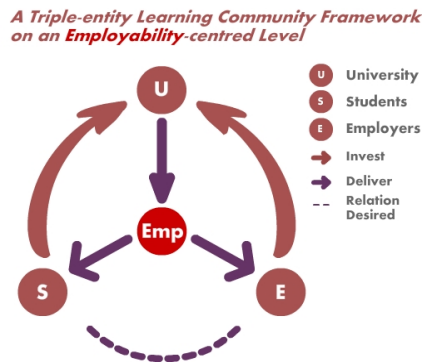


Figure 6 An employability-centered version of triple-entity learning community framework (Jing 2009; p.8)

In this simplified version, entities and directed relations taken from *Figure 6* remain unchanged respectively as universities, students, employers, input and output, but this time employability is put under the spotlight to help set up links with an external application which will improve our proposed learning community.

How to emphasize employability and not to jeopardize our good old tradition of vision in higher education at the same time has been a tough call. Hager and Holland (2006) [1] postulated an alternative: maintain the pedagogy of ownership but to insist that this ownership be shared. On a curriculum content development level, various stakeholders own their respective readings toward higher education, it is not entirely too immense to be regarded as “lifelong learning”, neither does it seem to be too short-sighted as “situated knowledge” acquisition, a hybrid of cognition building modes is therefore expected.

Back to our entities, based on a revised notion of such engineering in curriculum content, implications can be drawn as followed:

- For employers, it means joint-effort in development/re-engineering curriculum content as early as possible;
- For individuals learners, it means duality and balance of their knowledge acquisition is respected and desired by society;
- For educationists, hypothetical procedures (theory part in lectures) testable only in classroom are no longer fantasized but to share equal attention with more situated knowledge (e.g. tutorials and labs).

Luckily in our time of being, such hope is well realizable thanks to a technology intrusion previously deemed as a notorious threat – the computer-based network. Revolutions that it brings about to our lives is incalculable and this time around the legend has been carried on by its third wave of evolution: Semantic Web and Social Networking Systems

VII. E-LEARNING SYSTEMS AND SNS

A. Existing E-learning Systems

Currently, there are a number of applications that serve as e-learning platforms from both internally and externally of HES. Some of these e-learning systems that are being used by HES cannot be readily viewed as much successful as SNS, which are made popular all over the world on the Internet. To respond timely to what dominates nowadays students' knowledge/info acquisition preference by using those SNS, HES practitioners need to review our existing e-learning systems such as Blackboard, E-academic, iLecture and etc to improve or even re-engineer a new system for the betterment of desired academic outcome from graduates.

Universities throughout the world has been implementing e-learning applications into their current curriculum content for many years, the true power of it is yet to be exploited, take some of the courseware/simulation programs for example:

- Second Life, like the gaming development bottleneck that is frustrating game developers these days: the closer a game's graphical designed to approach reality the more detachedly a gamer tends to behave towards these games [23] which defeat the purpose of game design as a realism-reflecting learning tool;
- Blackboard, was developed as an e-learning system; however most of the students won't bother to keep themselves online unless their enrolled units require them to, lack of attractiveness and real-time interaction to learners is what puts this great platform in dilemma.
- iLecture, again lacking real-time interaction is what brings down the good tradition: hands-on human interaction, a social component of learning that is irreplaceable.
- E-Grad school, eGSA, hardly involves any tangible industry engagement, so it still treats education institution as an isolated agent from the rest of the social settings.

Currently much of the concentration of researches/information system development in tackling e-learning challenges is streamed into a technology-competency improvement channel, in other words, on the counteractive end of e-teaching development [3]. Few took notes of what is socially represented by e-learning as a fundamental pattern change to society. Instead of continuing the top-down pitching approach for the existing education system, the role of educators needs to be re-evaluated as a rather anchor-man like agency for the future of education to accommodate this change on a broader social level.

A draft survey titled "Employability, SNS and E-learning" (Appendix 1) was distributed among DEBII students and staffs to extract user data on current SNS, e-learning systems and their relationship to employability. From the responses collected (regardless of their demographic characteristics), significant findings are listed as followed:

- On a scale of 1 to 10, the average experience the respondents ranked for the difficulty of finding a discipline-matching job right after graduation is 5.67;
- It takes 1.42 years on average for the respondents to find a most "satisficing" job;
- 66.7% of respondents have used SNS as an extracurricular method of learning to reinforce their study in universities;
- More than half of the respondents ranked features such as "textual content", "valuable peer comments" provided by SNS are the reasons that attract them into SNS frequent-user;

- All respondents showed their highly preference of accomplishing university assignment by performing search online than attending to physical institutions;
- The respondents, merely for the requirement of their enrolled units, used various existing e-learning tools not because they were attracted to use them;
- 67% of respondents agreed with the belief that SNS can be utilized more as an e-learning tool to help improve employability.

From another perspective these existing e-learning systems implemented to serve academic traits which focuses strongly on the critical side but somewhat neglects (not entirely, of course) the co-operation side of learning, and in the real workplaces, a critical stance is not always appreciated; at least it is believed so by Paul and Susan (2006) [1]. So why can't we keep the reality check a constant part of our curriculum content to make workplace requirement and academic achievement culture in harmony?

B. Higher Education On Demand through SNS

Social network sites or systems is offered as [10] "web-based services that allow individuals to

- Construct a public or semi-public profile within a bounded system,
- Articulate a list of other users with whom they share a connection and
- View and traverse their list of connections and those made by others within the system."

It focuses on building online communities of people who share interests and/or activities, or who are interested in exploring the interests and activities of others based on their individual learning demand.

From this general definition, our SNS can be tailored as a set of external knowledge acquisition applications for students to access information that is not always available through their prescribed curriculum content but is critically demanded from their future work environment. Further down this road, why not introduce more live feed of workplace reality in our existing tutorial sessions?

Individual learners may vary in their perceptions of what is being needed the most urgently from their enrolled discipline, therefore, this proposed SNS e-learning community can bring both students and their future employers or even successful professionals together in an allocated sessions to share their interest and visions, which will in return, reinforce a better critical learning environment to balance the accounts of both theory and practice.

VIII. CONCLUSION

This paper is part of a research series on "A Social Networking System (SNS) as an E-learning Strategy to Enhance Graduates' Quality", as a start of its followed sequence in this research, several head-on issues regarding graduate's quality and a triple-entity learning community Core

Value had been spotted and a critical linkage between a graduate's quality and the proposed framework is discovered: employability.

Couple of frameworks is proposed to substantiate a network-based learning community and its components in a reductionism manner. Interactions among its components are also explored to visualize the inner working of its value exchange in this community and a consensus based on its topological value flow is reached to prevent recurrence of inefficiency of the system, namely starting point of any given path should be from Core Value or Employability.

Furthermore, a preliminary draft for subsequent stages of prototyping of an e-learning SNS is depicted to help developers focus on graduate employability as a primary curriculum content development objective.

Overall, this research paper serves as justification of a head start for a much broader scope of e-learning strategy initiative in current HES, by implementing SNS into existing curriculum content development, it is hoped to arrive at a better stance for universities to prepare for the teaching & learning challenges posed by an ever changing social/technological environment.

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APPENDIX 1

Employability, SNS and E-learning Survey (Email version)

1) *Employability*

a) *In your retrospect, as a graduate, did you suffer from any kind of difficulty of finding a discipline-matching job when graduated? On a scale of 1 (no difficulty) to 10 (extreme hardship), please rank your experience and a few words on why so:*

(Your response here)

b) *How long did it take for you to get your first satisficing (it could be 'satisfying' with no sacrifice of your goals) job? Please answer in years*

(Your response here)

c) *In a short description, what do you think of the term "employability"?*

(Your response here)

2) *Social Networking System/Site (SNS)*

a) *Do/did you use SNS as an extracurricular method of learning to reinforce your acquisition of knowledge at university? Please name a few of such sites/systems in a prioritised manner:*

(Your response here)

b) *Of these SNS, what are the features that make you think they are attractive (multiple choices allowed)?*

(Mark all that apply with red font colour.)

- Graphic content
- Textual content
- Audio content
- Social/communal belongingness
- Emotional comfort
- Technical supremacy
- Valuable peer comments

c) *How relevant to your future employment, do you rank the information retrieved from SNS compared to that acquired at university? On a scale of 1 (least relevant) to 10 (most relevant)*

(Your response here)

3) *E-learning*

a) *Do/did you prefer to search online (both Internet and university intranet) or go to physical library for university assignments, or both, neither, if neither, what is your preferred way then?*

(Your response here)

b) *Name a few (more than two) e-learning applications you remember while you were/are studying in university:*

(Your response here)

c) *Of these e-learning applications which one is your favourite when it comes to assisting your curriculum activity in university, why?*

(Your response here)

4) *Summary*

I believe that SNS as a future e-learning application will help improve graduate employability, what do you think about my assumption?

(Your response here)