A second-order cybernetics approach to the relationship between the intern and the workplace in a Work Integrated Learning (WIL) experience

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Work Integrated Learning (WIL) programmes involve partnerships between diverse groups of individuals. This paper provides an alternative perspective on the relationship between the intern and the workplace, framing it in a second-order cybernetics system. Being inherently transdisciplinary, cybernetic reasoning can be applied to understand and provide a different approach to successfully integrate the intern into a workplace system. The paper provides an overview of the cybernetics approach, with reference to learning and experience and includes a discussion the cognitive open loop in Luhman’s conceptual pairings. The paper concludes by suggesting that a second-order cybernetics system may be beneficial for the transfer of tacit knowledge in a workplace system, however research on the relationship between the intern and the workplace is needed to confirm a positive relation.

Introduction

Socialisation in western society takes place in a world where it is assumed that a linear cause/effect approach is appropriate. In a linear causal relationship it is believed that event A causes event B, in a linear, unidirectional fashion. A is responsible for B and consequently can be seen as causing B. A work integrated learning (WIL) program (A) will therefore cause work experience (B). Reality is seen as separate from people, existing outside of their control. Meaning thus comes from external experience. Distinguishing a WIL program as a cause/effect relation, will position the intern as a merely a recipient of reality; a recipient of experience. As a result, the interns react to the reality of the workplace rather than being active participants in the construction of the experience.

Cybernetic theory, in contrast to a causal relationship, regards the construction of reality as a non-linear concept. Cybernetics is concerned not so much with what systems consist of, but how they function (Becvar & Becvar, 2000). Although an extensive explanation of cybernetic
theory eludes the capacity of this paper, aspects of first- and second-order cybernetics relevant to the topic will be discussed.

**First-order versus second-order cybernetics as framework**

Cybernetics is differentiated into first and second-order cybernetics, both portraying the world in terms of systems in relation with other systems and subsystems. The relationship between the intern and the workplace in a WIL program can be delineated in terms of a systems framework. Within cybernetic theory, the intern and the workplace can be described as two systems:

![Intern Workplace Diagram](image)

In first-order cybernetics the intern, as system, views the workplace-system as an outside observer. Observing a system as an outside observer implies that the intern is not part of the workplace system that is being observed, and fails to take into account the interactions of the two systems as they both exist within a larger context (Becvar & Becvar, 2000). The workplace is perceived and described in terms of the feedback processes that maintain the workplace system; however, what really happens within the observed workplace system is not apparent to the observing intern. The intern is not seen as part of the workplace system or concerned with why it does what it does (Heylighen & Joslyn, 2001).

A second-order cybernetics framework is proposed by the authors of the paper as the outstanding framework - compared to a causal or first-order framework - for delineating the relationship between the intern and the workplace. Second order cybernetics (also known as cybernetics of cybernetics) moves the system up a level of abstraction so that the intern is no longer an ‘observer’ of the workplace system. On the level of second order cybernetics, the
workplace system is not viewed only in the context of the inputs and outputs of, or relationships with, other systems (Leydesdorff, 1997). It moves to the larger context that includes the workplace plus the intern. At this higher level of abstraction, the student becomes a part of, or a participant, in the workplace system (Dubberly & Pangaro, 2007).

There is an emphasis in a second-order cybernetics system on reciprocity, recursion, and shared responsibility and it is therefore not the sole responsibility of the workplace to provide work experience to the student. The systems exist in a relationship where each influences the other and both are equally cause and effect of each other’s behaviour.

The cognitive ‘open loop’ in Luhman’s conceptual pairings: tacit versus explicit knowledge

Luhman introduced a distinction between the normatively closed and cognitively open system on the social level within a second-order cybernetics system. Within a WIL experience the second-order cybernetics system will encapsulate the intern and the workplace as an interconnected system (Grund et al, 1999).

Communication is emphasised as the foundation of social systems in Luhman’s theory, and his conceptual pairings make it possible for a social system to be simultaneously self-producing and still able to maintain the capability of learning through the cognitive openness of the system.

Work-integrated learning provides the intern with the opportunity to apply their theoretical knowledge, to develop new skills, reflect on practice and to develop an understanding of their relevant discipline in a real-world experience (Webb & Hayes; 2008). Social situations – such as the workplace – are not just a once-off source of learning and knowing. Instead, they constitute environments in which knowing and learning are co-constructed through ongoing and reciprocal processes’ (Billet, 2001 as cited in Gibson et al; 2002).
Second-order cybernetics avers that knowledge is a biological phenomenon. Each individual construct his own ‘reality’ and knowledge ‘fits’ but it does not necessarily ‘match’ the world of experience. Different observers construct different ‘realities’ and thereby different perceptions (Umpleby; 1994). Subjectivity is seen as inevitable as the intern perceives, acts on, and creates his/ her own reality. The interdependence of the intern and workplace as one system, is an important aspect of a holistic perspective that takes into account the context of the interaction. Such interaction is seen as a non-causal, dialectic process of mutual influence in which both participate. Understanding requires the assessment of patterns of interaction with an emphasis on what is happening rather than why it is happening (Heylighen & Joslyn, 2001).

Knowledge within the workplace system can be regarded as assets within the workplace system, but also constitutes an opportunity for the intern. The most potent of these assets are the intangible tacit knowledge. Tacit knowledge is a form of skill, ability and know-how which is hidden and difficult to communicate to other as information. Tacit resources are skill based and people intensive, implying that as a resource, people within the workplace-system are important as accumulators of invisible assets. It is clear when studying tacit knowledge that a second-order cybernetics system may contribute to a higher probability of tacit knowledge transfer to occur. On the other side of the tacit knowledge continuum is explicit knowledge, the part of our knowledge base which can be easily communicated to others as information. Explicit knowledge is learned and shared in the formal education and business world, for example by way of textbooks and training presentations. According to Drucker (as cited in Grund; 1999) the only way to access tacit knowledge is through apprenticeship and experience. The authors of the paper support this assumption; however add that a second-order cybernetics system, encapsulating the intern and workplace in one system, is necessary for the transfer of tacit knowledge to occur. In the situation where the intern either perceives
his position in the relationship (or is perceived as) as an outsider, the likelihood for the transfer of *tacit* knowledge decreases. *Tacit* knowledge in the workplace system may therefore not become explicit, and can hinder the success of the WIL experience.

**Conclusion**

Vital learning occurs outside of traditional education. WIL provides the student with an opportunity to gain ‘real world’ experience. Learning is, however, personal, and what each student gains from a learning encounter depends on their motives and intentions (Gibson *et al*; 2002).

According to Orrell (2004) a distinguishing feature of effective work-placement programmes is that they involve partnerships among several groups: employers, students, academic teachers, higher education managers, professional bodies and broker agencies. The paper looked at a possible second-order *cybernetics* framework, connecting the intern and workplace in one system.

Reality is subjective, and the way an intern creates reality in the workplace situation will be a function of the set of assumptions and frame of reference with which he views the situation; however for WIL to be a successful experience, the intern have to restructure his position as observer in a first-order *cybernetics* system to being included in a second-order *cybernetics* system for the experience to become a ‘shared meaning’ in the student-workplace system.

The paper embraced the concept of second-order cybernetics as a possible framework for the relationship between the intern and the workplace, emphasising the exchange relation between knowing and being. What we *know* as cognition and theory affects what we *are*, what we *feel* and what we *know* by experience.
References


