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## An Essay on Lifespan Development from the Perspective of Information Ecology

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### Introduction

Human ontogeny may be viewed as a course of transitions through informational states. This paper is an attempt to model the informational niches through which some individuals pass in American society. The individual modeled is an essentialized European American middle-class male energy producer. The framework adopted is based predominately on social psychological principles as applied to the domain of lifespan development. However, the perspectives of social psychology are here merged with the nascent field of information ecology. The specific transactions that occur between individuals and the larger social matrix here modeled are informational in nature (demarcations of status, symbolic interactionism, educational manipulation of ideological states, socially negotiated concepts of self, etc.). Also, some key concepts from information ecology are applied as explicative of human ontogeny and the development of the social self.

### Some Key Concepts

Over the course of the lifespan, humans exploit several informational niches, each with some unique affordances. Affordance (here borrowed from Gibson 1979), refers to aspects of the environment that are perceived by organisms as having some value for them (Neisser 1993). For information ecology, the niche may be seen as comprising access to different informational affordances. Some affordances may be utilized to obtain the same goals (such as status) but be encoded differently in different ontogenetic phases. Thus a football jersey and a stock portfolio may afford some of the same

social benefits, but have radically different forms and be relevant only within certain age-graded environmental contexts. It should be stressed that affordances for many organisms require agency (in the form of creativity, experimentation, or insight) to be perceived and acted upon as significant. The same is true of informational affordances. Their apprehension, by definition, requires some perceptive ability, and occasionally strategy and goal directedness, to be seen as affordances. Part of the challenge for humans is to negotiate their informational environments and evaluate affordances, as well as learn to manipulate information in ways to increase their access to particular utilities of affordances, while avoiding their harmful negative features. One of the important aspects of being human is that much of this can be done by the manipulation of informational fields, instead of always at the level of immediate, personal, somatic risk.

### Notes Regarding the Text

The text of this paper is not intended to stand alone as a guide through lifespan development within information ecology. Instead the text is designed to further explain the content of the various graphic models presented in Figures 1 through 6. The text is divided under subheadings which are the titles of the graphic models to which they refer. Table 1 (below) provides an overview of the phase of life that the models illustrate. The most beneficial approach is to read through the subheadings while looking at the model to which it refers. Neither the models or text are autonomous.

**TABLE 1: OVERVIEW OF PHASES.**


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<b>Ontogenetic Phases</b>
Phase 1- Birth to Daycare
Phase 2- Daycare
Phase 3- Grade School
Phase 4- Middle and High School
Phase 5- University
Phase 6- Early Adulthood
Phase 7- Middle Adulthood
Phase 8- Late Adulthood
<b>Key Information Features</b>
Phase 1- Dyadic, Ambient
Phase 2- First Institutional Control
Phase 3- Female Dominated, State Mandated
Phase 4- Deviance, Subcultural Identity Formation, Heavy Sanctions
Phase 5- Self-management, Decision Making
Phase 6- Machiavellian Intelligence, Applied Knowledge, Goal Setting
Phase 7- Maintain Stability, Emphasis on Family Related Information Management
Phase 8- Reflection, Choosing Storage Facility

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**Phase 1- Birth to Daycare (Fig. 1a)**

This period is largely confined to the home environment(s). The major nexus of social interaction is between the infant and the primary caregiver (graphically depicted as the mother). Information is abundant, however the receptive skills of the infant remain incompletely known. Environmental inputs may be directed toward the infant (infant directed speech or motor interaction) or be ambient (encoded in the design of the nursery, music played, etc.). Often, informational interactions are prop mediated (depicted as a rattle). Props may be used in connection with indexical communication to provide information about the properties of objects themselves, or merely to provide an informational location for interaction of a social

nature. The infant is an agent in many ways, crying or otherwise informing caregivers of bodily states, levels of arousal, etc. However, the information environment is largely adult-driven. Internalized properties, such as idealizations of the nature and role of parenthood, guide the adult in constructing the informational environment from nursery design to forms of interactions performed.

This environment is relatively simple, with minimal direct interference from the outside world. Their impact is mediated through idealized parenting style and through the laws regarding paid employee leave and parent benefits which temporally define the parameters of the system.

**Phase 2 Daycare (Fig. 1b)**

The daycare system sees the arrival of direct state intervention (in some states). This occurs in the form of state licensing and regulations regarding the operation of daycare facilities. However, from the point of view of the child, interactions are mediated not by state mandates but by the styles of the daycare staff. Maternal inputs here are largely in the form of attempting to select a daycare which practices childrearing in a manner optimally close to her own philosophy. As the child may be preverbal at this point, the information the mother receives from the daycare may be (at least initially) restricted to reading signs: indications of joy, discomfort, injury, etc. Older children may report verbally regarding their daycare experiences.

Significantly, daycare offers a new informational source for the child in the form of peers. Peer interaction styles are mediated by maturational level, as well as by developmental features such as social competence. Maturation elements (age, motor skills, etc.) may not be manipulated. However, social competence is a negotiated process resulting from and feeding into peer interactions. Play groups also form, providing the child with opportunities for various forms of joint activities (pretense, construction play, sense of mastery, etc.) which are severely handicapped in child-adult interactions. These skills likely feed forward into future systems, providing the framework for social prestige, literacy, etc.

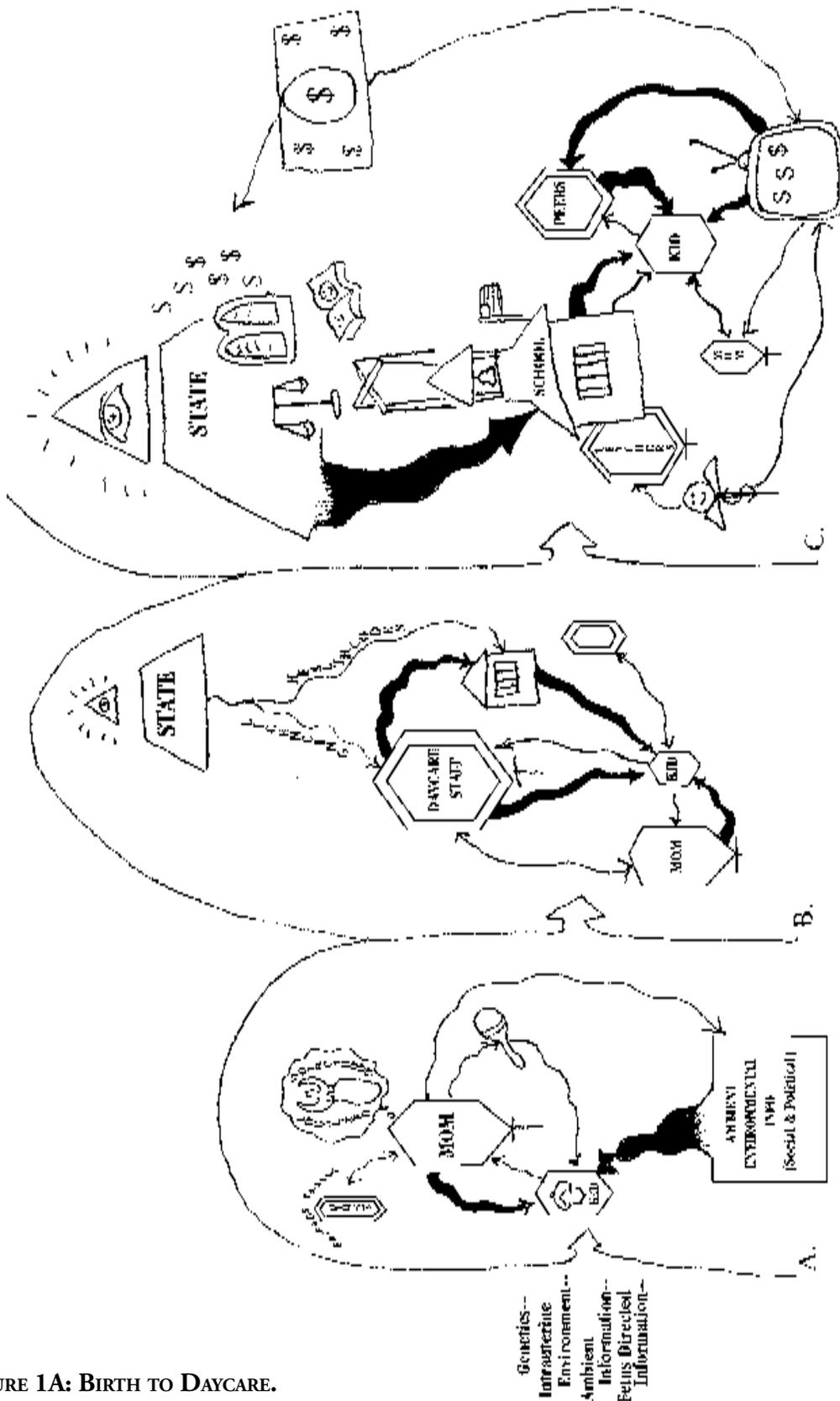


FIGURE 1A: BIRTH TO DAYCARE.  
FIGURE 1B: DAYCARE.  
FIGURE 1C: GRADE SCHOOL.

**Phase 3: Grade School (Fig. 1c)**

The grade school environment contains larger inputs from superorganic constructs. The school is represented as a puppet of the state. The state approves textbooks, syllabi, curricula, pedagogical methods, disciplinary intervention, licensing of teachers, budgets for school resources and many other features of the learning environment. Part of the state's objectives are to provide access to particular versions of history and state functions to promote its continued existence. It also inserts secular rituals, such as raising the state flag and the Pledge of Allegiance while acting to support some forms of related religious activities, although this is a continued source of tension for some adults.

Further inputs from the superorganic come in the form of television. Television programming and advertisement form the standards of the child's presentation of self and concepts of which products and activities afford status improvement. Television also forms the basis for common interest among children. Peer influences reify the televised information inputs, pressuring the individual to participate in sanctioned activities (playing basketball, wearing the right sneakers).

Influences from other children bolster social competence as well. Interactions with peers at this point will have consequences on personality development which may last throughout life (Turner and Helms 1991). Involvement with the peer group information complex has the effect of diminishing the reception of parental inputs.

The school environment is proximally female controlled. Thus, it is largely female teachers who assess conformity and deviance. The current environment is such that signs of restlessness and boredom (which are prescribed by the physical and social school environment) are considered deviant. Young males are particularly at risk for being labeled as "troubled." Male activity levels are improperly understood by female teachers, which is capitalized on by the Psychiatric Industrial Complex (PIC) in the form of Attention Deficit Disorder, treated with drugs and counseling (Peligrini and Horvat 1995). Such interventions by the PIC increase in High School.

**Phase 4 High School (Fig. 2)**

High school is the most turbulent period presented. In the language of a reified attributional stance, maturational forces and social forces clash. In this period the role of the school is less one of providing an educational foundation, and more one of diagnosing the success of early educational interventions by the state. The potential for danger and deviance is greatly increased in the high school period. The state still performs the same role as it did in grade school, with deviance intervention taking on a higher role. Children may now be tried as adults, and principals have ready access to police as a disciplinary recourse. Authorities and parents are particularly vulnerable to the state's ideas of deviance. Locker searches, attempts at mandatory blood testing, school counseling, etc., all fuel parental concerns about the well-being of their children. PIC targets the parents of high school children avidly. The eighties saw a plethora of commercials from the Hospital Corporation of America (HCA) which cited children spending less time with parents, more time in their room, and less disclosure of private events as being diagnostic of mental illness. This encouraged parents to incarcerate children in HCA psychiatric hospitals with great frequency. This exploited children, parents and insurance corporations, and is still a major trend.

Peer interactions expand beyond the school itself. Subcultural identities form, often based around music and other media, encouraging new perspectives and ways of approaching information. This expanded social network is inherently deviant from the state's point of view, as it departs from state sanctioned activities such as sports and school dances, as the major venues of social interaction. These venues are manifested within a closed state system with faculty presence. But the subcultural activities often have no adult supervision, and unite high school age individuals with older individuals, as well as with forms of thinking subversive to the control attempted by authorities.

The goal of the high school student is release in the form of graduation. Other options exist, such as the GED (Graduation Equivalency

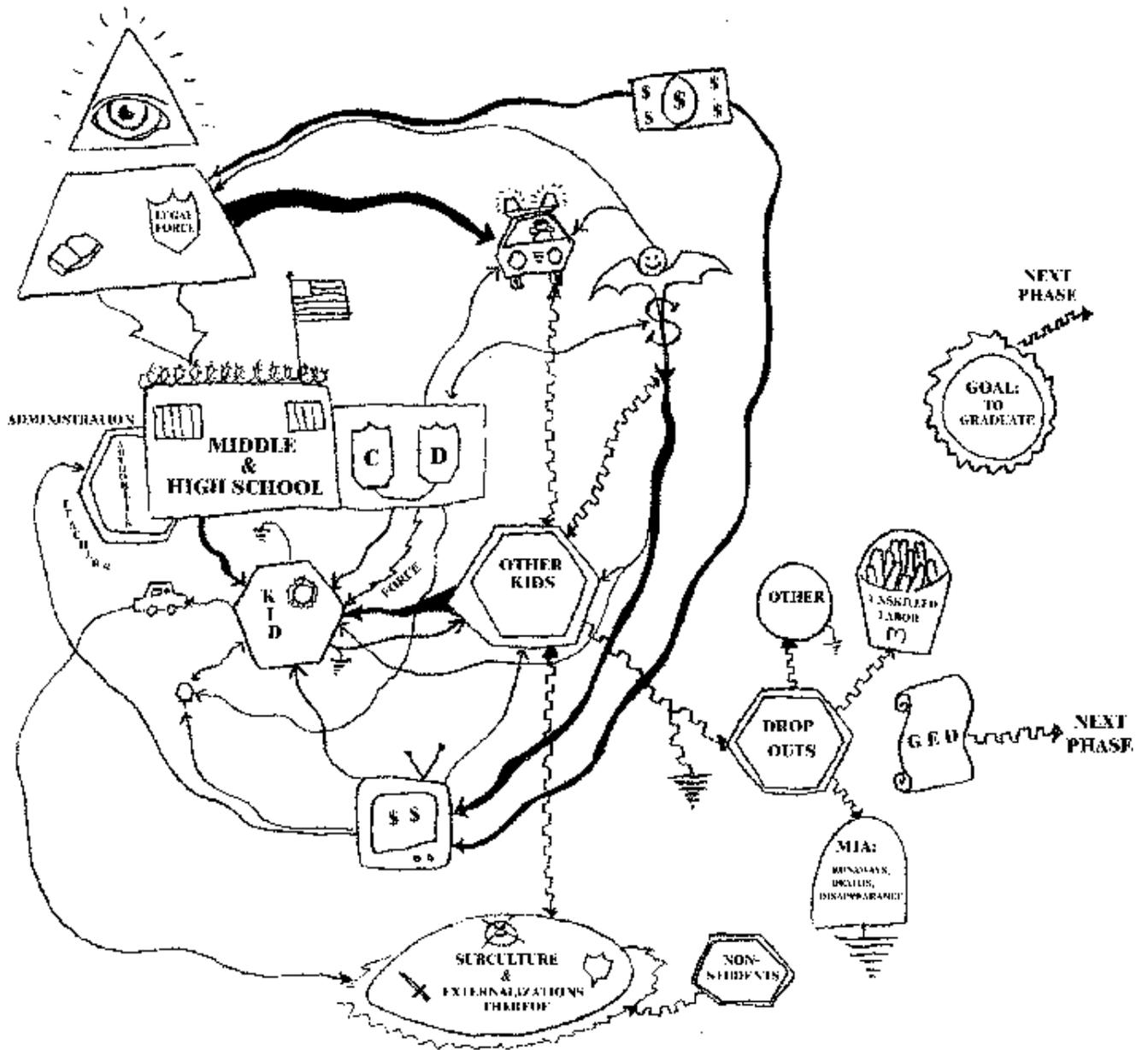


FIGURE 2: MIDDLE AND HIGH SCHOOL.

Diploma), dropping out into unskilled labor pools, running away, etc. At this point, the goal of graduation is not typically seen as a way in to a new state (inexperience renders the next state mysterious), but rather as a way out of the control conditions of high school.

### **Phase 5 University (Fig. 3)**

Going to college represents a profound break from earlier informational environments. The key dilemmas faced are largely in the form of self-management. Prior to college, the rule has been external control. Many students fail to achieve a self as locus of control and perform poorly their first year at college. Those who do well must master several challenges.

Students must learn to cope with isolation and anonymity. A social group is not provided as it was in the smaller high school system. They must learn to do laundry, get food and perform many other daily tasks. However, a great deal of choice is offered as well. Students may seek those of like interests and share information. They must balance social imperatives with course demands.

The presence of the state is largely unseen by undergraduate students. The university is felt primarily in terms of its policies, resources and objectives. These come to the student in the form of departments and majors available and general university requirements (GURs). GURs broaden the student's knowledge base, while allowing them some degree of familiarity with what the school offers, in terms of majors. They also allow for some room of decision making and control of which course may be taken to satisfy the requirements.

Selection of a major is a demanding task. The student must develop goals based on assessment of their interests and life plans. These future-oriented informational phenomena require the ability to delay gratification, and recognize properties of information regardless of immediate utility. Within the major, the student acquires knowledge and skills for a "future career." They also gain enough mastery of a domain to begin to become a critical consumer of information. They are called upon to practice skills as a producer of information

as well (writing papers, sharing meaningful ideas in class, etc.).

Graduating from college is not as much of an escape as a means to enter the adult world. Objectives are not only to graduate, but graduate and get a job, make money, get settled, etc. Meeting these conditions brings the individual into the world of early adulthood.

### **Phase 6 Early Adulthood (Fig. 4)**

The goal of early adulthood is to establish an adult identity. This goal of adult identity is largely a product of the state's intervention in early development and may be glossed as the American Dream. The person seeks to establish a career, a family, and personal autonomy which are the informational markers of adult status. The young adult 'plays the game,' meaning they devote their mental energies to career advancement. They seek promotions and raises. This requires applying acquired knowledge for competent work practice, and Machiavellian intelligence to navigating relationships with colleagues and superiors in attempting to gain priority to resources.

Having acquired resources, the young adult must learn to manage them effectively. This requires a tighter focus of goals, an awareness of future dynamics, and an ability to further delay gratification. The social environment is also of great concern to the young adult in the quest to obtain a mate.

Young adults select venues of social interaction where others of like interest may be found. This is a retention of the subcultural phenomena of high school and college. Encounters at such venues may lead to comparison of spousal criteria, with the eventual finding of a mate. Marriage and children mark the entrance to the next phase.

### **Phase 7 Middle Adulthood (Fig.5)**

Middle adulthood marks a period of relative stability. Its defining features include career and family stability. However, these must be maintained. Informational flows are open on these fronts. For most, the self-imposed career-climbing aspect declines. Information directed towards

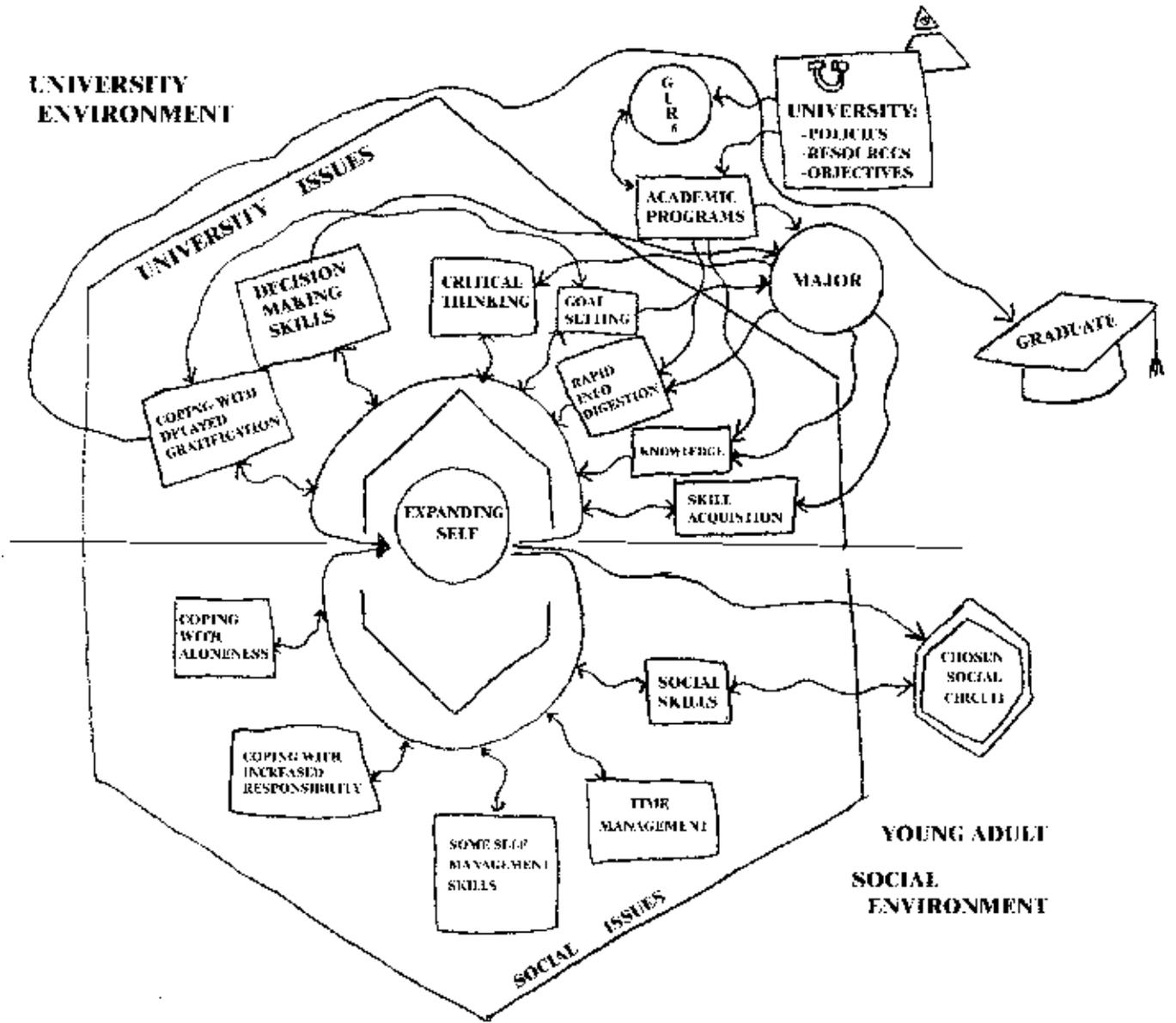


FIGURE 3: UNIVERSITY.

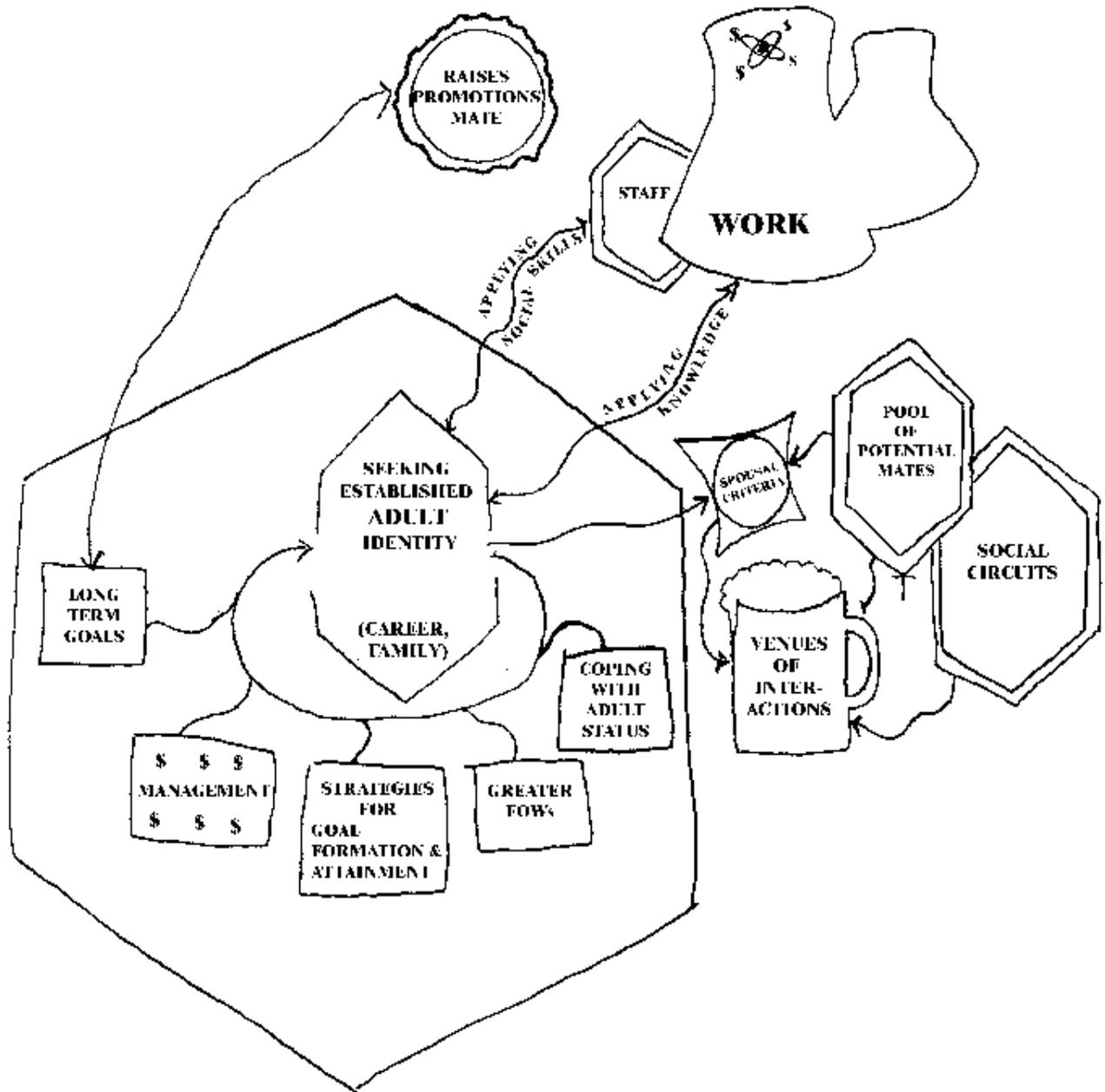


FIGURE 4: EARLY ADULTHOOD.

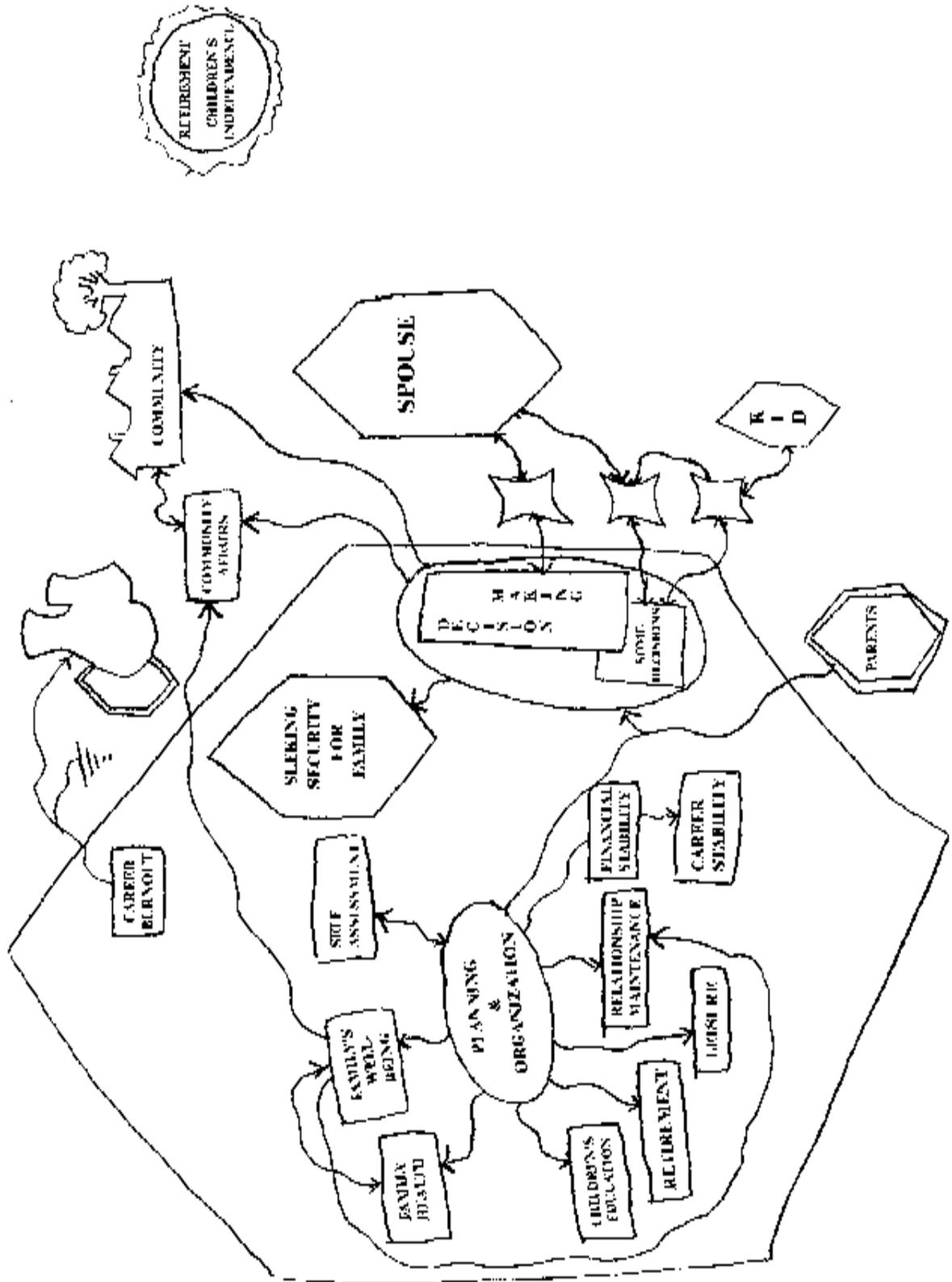


FIGURE 5: MIDDLE ADULTHOOD.

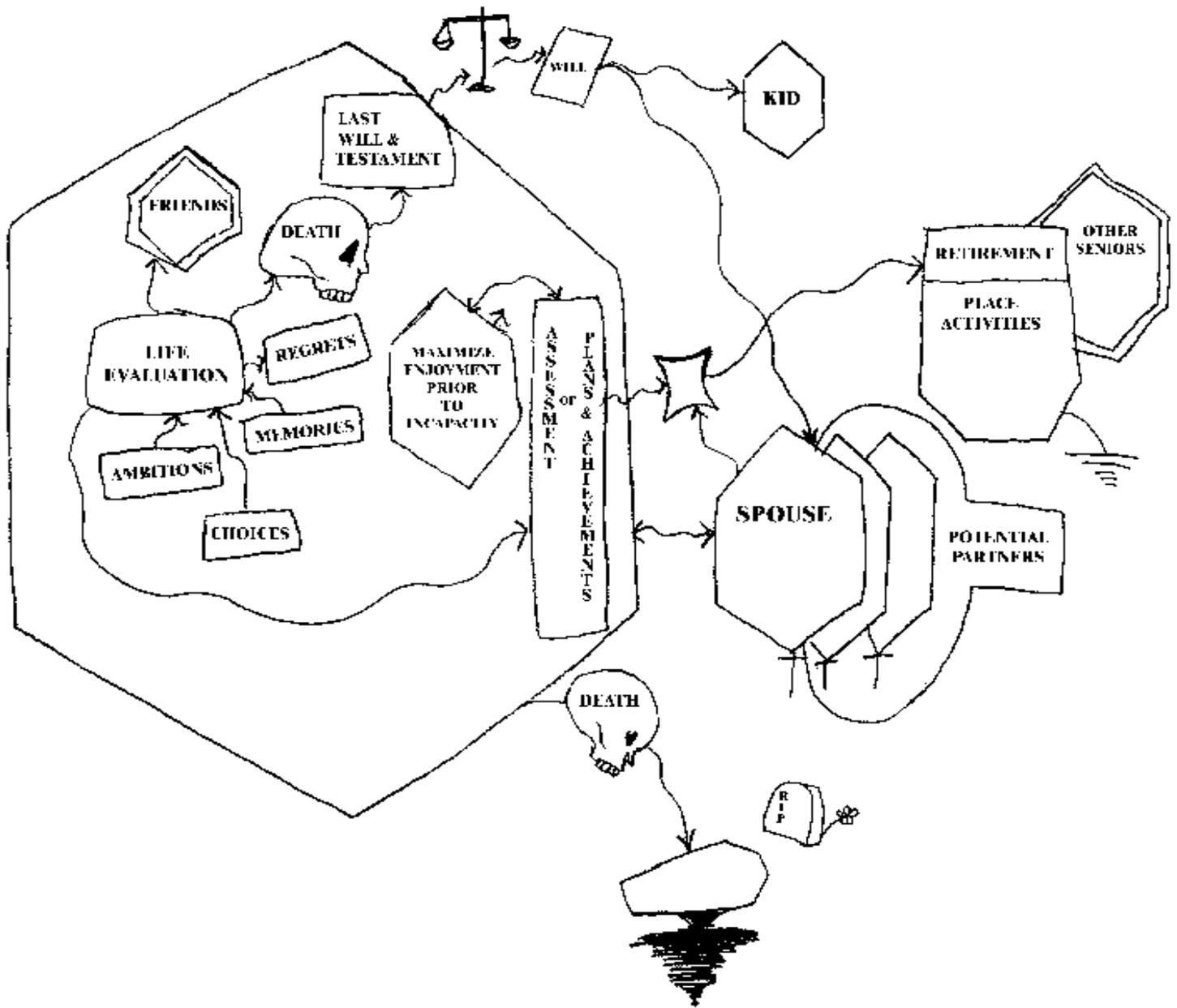


FIGURE 6: LATE ADULTHOOD.

lose job. Career burnout creates a sink where much potential work related information vanishes. Work is done less for its own sake, and more to maintain security for the family, which is the primary directive of this phase.

Joint communication with the spouse is at a premium. Decisions regarding family finances,

well-being of children, and the relationship itself are the greatest concerns. A community identity is established, largely revolving around issues of providing an acceptable environment for the children. Middle adulthood also requires the monitoring of aging parents.

The predominate nexus of information

exchange is internal to the individual and related to planning and organizing for the present and future. The educational needs of children, retirement, leisure activities, family health and future stability are the major concerns. The outcome of these comparisons result in heightened attention to one's career, to meet financial needs, and family, to meet the needs of stability. If these are successfully negotiated, the children become independent and the couple has the resources to retire.

### Phase 8 Late Adulthood (Fig. 6)

Retirement is a sink as far as the extended world goes; however, information is actively exchanged among the retired individuals. Additional information flow occurs in the form of decision making directed toward the transfer of resources to the next generation. The end of life provides the ability for heightened self-reflection. Ambitions, choices, regrets and memories may be weighed against each other. This need not be seen as maudlin, but rather a last chance to see, correct and accept one's life. Death looms on the horizon, guiding and motivating choices.

The spousal unit also evaluates their joint life and present needs. They select the form of their retirement based on options and resources. They may develop a sense of community with other seniors and thus receive some social inputs. This system is largely confined to itself. Its end is marked by death.

### Conclusions

Each phase of life has unique balances of information access and management. The pre-adult phases are dominated by external controls and heavy sanctions. Early adulthood phases are largely dominated by using information to construct a self which satisfies goals and desires of personal and social natures. Middle adulthood is marked by the use of information to maintain the self as part of a family unit and to prepare children and adults for the end of this system. Late adulthood is a withdrawal from large informational networks and a time of learning to accept life as it has been, and the inevitable end.

The models offered are not at a level of definitive resolution for any phase. Each phase is rich and intricate in detail, much of which is not captured here. These models have attempted to illustrate basic properties of information ecology within a social participant perspective. Individual psychological perspectives, or perspectives from outside parties (such as the state, or PIC), are also possible and would be of interest. Additionally, cross-cultural and comparative social organization models would no doubt be of significant value. Models uniting information with economics, biological changes or energy flows would also help to illustrate the ecological phases of development. This has been a preliminary attempt to rough out some features of lifespan informational ecology and it is hoped that the future will richly improve upon this initial attempt.

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